SIEMENS

SIOS

SP

Planning Guide

System 55 37 027

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Document revision level

The document corresponds to the version/revision level effective at the time of system delivery.

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General Notes

- With distribution of these revision level, all preceding planning guides, Speed Infos (PG's) and drafts lose their validity.

- All layouts issued by the Planning Departments must bear a note referring to the installation and delivery conditions of Siemens Medical Engineering Group. The installation and delivery conditions must be submitted with the layouts.

- Unless otherwise specified, all dimensions are indicated in "mm".

- The symbol indicates a change (see revision status).

- Orientation points
  Points specific to system components to which reference is made when positioning system components to each other or in the room.
  The isocenter of a radiographic system is always illustrated as the orientation point.

- Fixpoints
  Clearly marked points on system components, installation ceiling, walls or floor on which cable outlets are located.
  Illustration in the drawings: circle with letter/number-combination.
  The cable lengths establish the maximum fixpoint distances and thus the maximum distances between the individual system components.

- Room height
  The room height is the distance measured from the top surface of the floor to the bottom surface of the ceiling structural elements (Unistrut rails) (bottom surface of drop ceiling).

- Room lighting
  According to DIN 68 68-57 (international standard in preparation), the lighting in rooms in which image playback devices (monitors) are used for diagnosis, the following requirements must be met:

  adjustable, no anti-glare screen, reproducible adjustment of the lighting (e.g. dimmer with scale),

  no glare or reflection from windows, lights and light boxes in the standard working position of the monitors.

Hotline + 49 (9191) 18 - 8080

Safety

- The provisions of the relevant fire protection regulations must be observed for the premises.

- The system has been developed according to EN 60601 - 1.

- Minimum dimensions (e.g. room heights, safety distances) indicated in the planning guides are marked "min."

- Basic resistance against electromagnetic sources of interference.
  Result of lightning discharges.
  The protection targets of the different lightning protection areas up to the unit connection are also specified in the IEC 1024, DIN 48810, VDE 0675 and in the DEMVT recommendations.

UPS, Uninterruptable Power Supply

- All electrically powered devices that are indispensable to maintain surgical operation must be equipped with an UPS. The national regulations and specifications of the hospital system must be observed.
  Min. DIN VDE 0107

Hygiene

- Performing all work steps in the clean room area (OR area) and models with reactive substances or materials are subject to regional and internal hospital regulations. These regulations must be determined, communicated to external personnel and observation of these regulations must be monitored.

Definitions, Acronyms and Abbreviations

AAM	Audio Amplifier Module
AE	Order entry
IM	Image Mixes
CAI	Control Audio Interface
CANopen	Name of the communication bus / interface for operating external technical devices or equipment
C-Arm	Mobile radiological device
CG	Surgical gases
CHARM	Change request management system
CL	Overhead power supply for unit carriage (Cantilever)
CO_2	Carbon dioxide
CMT	Configuration Management Tool
CSE	Customer Service Engineer
DB	Device Box (unit carriage)
DE	Documentation unit
DIN	German Industrial Norm
DL Catalog	Service provider catalog
DT	Data Terminal
DU	Display unit / Central image and control unit
DP	Data processing
EN	Euro Norm
Endo	Endoscopy
Endo-Cam	Endoscopic camera
Endo-Light	Endoscopic light source
ES	Electronics cabinet / Central SIOS controller
ES 1 / ES 2	230 V power strip
DB	Device Box / Adapter for surgical equipment
HBT	Manual control unit
HF	High frequency
IP	Industrial partner

Definitions, Acronyms and Abbreviations	
IR sender	Infrared transmitter
Kdb	Knowledge data base
IEC	International Electrotechnical Commission
LC	Light Control
Mat_No	Material Number / Siemens order designation in the SAP system
Mh	Man hours
Mod	Modality
MPS	Multi Power Supply
OR	Operating room
PET	Product Introduction Team
PC	Personal Computer
PG	Planning Guide
PI	Price Information
PM	Project Manager
PS 12V	Power Supply, 12V
PSU	Power Supply Unit
RS 232	Serial Interface
SH	Interface to the in-house system
SIOS	Siemens Integrated OR System
TFT	Thin Film Transistor
UPS	Uninterruptable Power Supply
VCR	Video recorder
VDE	Vereinigung Deutscher Elektriker
VK	Abbreviation for a system cable
VP	Video printer
VS	Video Splitter
ZIP	ZIP drive (external)
ZS	Central controller

Definitions, Acronyms and Abbreviations	
Occupation = the sum of all manual labor and specialty occupations needed to finish a complete project	**worst case** = the most unfavorable constellation or situation that can be anticipated
"stand alone" mode = operation of a technical device without control via the SIOS	

System Overview

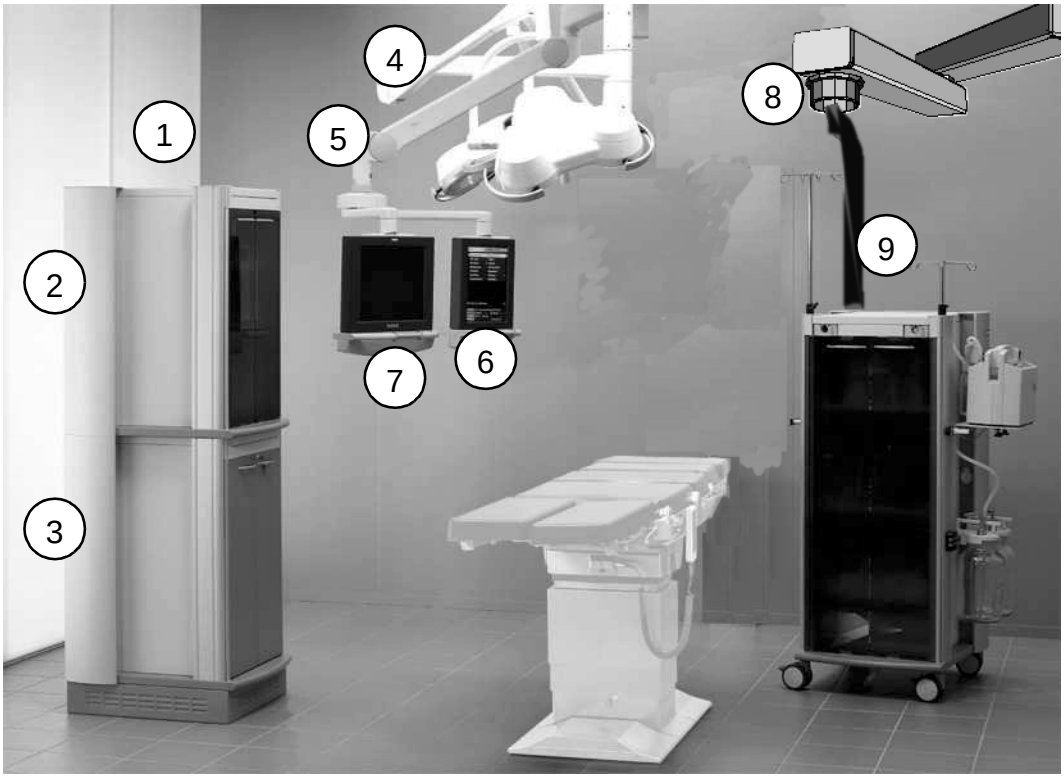


Fig. 1

Standard Components:

1/Fig. 1 = Electronics cabinet (ES)
2/Fig. 1 = Documentation unit, top section of cabinet (DE)
3/Fig. 1 = Central controller, bottom section of cabinet (ZS)
4/Fig. 1 = Ceiling mount for Display Unit (DU)
5/Fig. 1 = Monitor trolley system (MTS)
6/Fig. 1 = Menu monitor (15" TFT)
7Fig. 1 = Image monitor (18" TFT)
8/Fig. 1 = Ceiling power supply for unit carriage (CL)
9/Fig. 1 = Unit carriage (DB)

Overview of Interfaces

Interface	Location	Model	Remark
230 V / 50 Hz 110 V / 60 Hz	ES (ZS)	3 x 2.5 mm² (25A) open cable ends	From in-house EPS or UPS
Telephone and pager system	ES (ZS)	National analog modem connection	Separate Tel_No. for SIOS (national telephone service)
Hospital data cable	ES (ZS)	Connector socket for RJ45 coupling	
Room light	ES (DE)	Clamp connection for signal cables from console	Functions sensor mode in OR control module
Surgery lamp	ES (DE)	Clamp connection for signal cables from console	
Video Import	ES (ZS)	Video input in 15-pole D-Sub or 5-part BNC	For displayable video norms see "Technical Data"
Video Export	ES (ZS)	BNC connection for permanent transfer; S-video connection for toggle transfer	
C-Arm tube unit	ES (ZS)	Cable from X-ray tube unit	Units with SIOS release
Vacuum	DB	DIN connection	Central supply
CO_2 gas	DB	DIN connection	Central supply
Compressed air	DB	DIN connection (5 to10 bar)	Central supply
Compressed air model	DB	DIN connection, air motor	
Ultrasound	DB	Cable from US unit	Units with SIOS release
Video recorder	ES (DE)	RS 232 plug-in connection (cable from SIOS)	
Video printer	ES (DE)	RS 232 plug-in connection (cable from SIOS)	
Endoscopic camera	DB	CANopen plug-in connection (cable from SIOS)	
Endoscopic light	DB	CANopen plug-in connection (cable form SIOS)	
Insufflator	DB	CANopen plug-in connection (cable from SIOS)	
HF surgery	DB	CANopen plug-in connection (cable from SIOS)	
OR table	DB	Infrared receiver in table (transmitter under unit carriage)	Tables with SIOS release
Vacuum/purge pump	DB	CANopen plug-in connection (cable from SIOS)	Units with SIOS release
Manual controller (HBT)	DB	Part of SIOS (plug-in connection in DB)	Consumable part
Voice controller (headset)	DB	Part of SIOS (plug-in connection in DB)	Consumable part

Information and Communication

Conditions

Some information is required during the product offering phase. This information needed to estimate the amount of time required for on-site measures, material and deadline planning is marked in the SIOS Planning Checklist (Publication Number???) in a shaded frame.
If a time estimate is imminent in a region, the installation company must be informed and should be involved in the on-site deadlines.

Project Performance

There is no comparable predecessor product for SIOS and there is no dependent system manufacture prior to shipment, and thus there is also no system testing. System testing will take place for the first time in the OR within the framework of the startup.
For these reasons, project performance is a process that until further notice will be the subject of particular study by a Project Introduction Team (PET).

The stability and standardization of this process should be set as a goal to be achieved as quickly as possible. To achieve this goal, we reserve the right to rescind some information.

- Room planning is performed and coordinated with VR P Erlangen.
- Installation at this time is always performed by the Hansen Medical Technology Company. The installation company is involved in all planning steps.
- The initial installation in a management area is applicable as a training vehicle for the CSE, he should take an active part in all installation steps and be present as an observer during user orientation.
- PET performs project monitoring

All participants are instructed to conduct open, positive and discipline communication. This is a challenge that cannot be overestimated.
The form of e-mail is preferred here and should always be sent to only one addressee. All others should be informed using CC. The addressee is obligated to react immediately.

For all initial projects in a PM's area of responsibility, complete project performance is regarded as a training activity and is supported to a great degree by Erlangen.
Please contact the Product Introduction Team directly (PET).

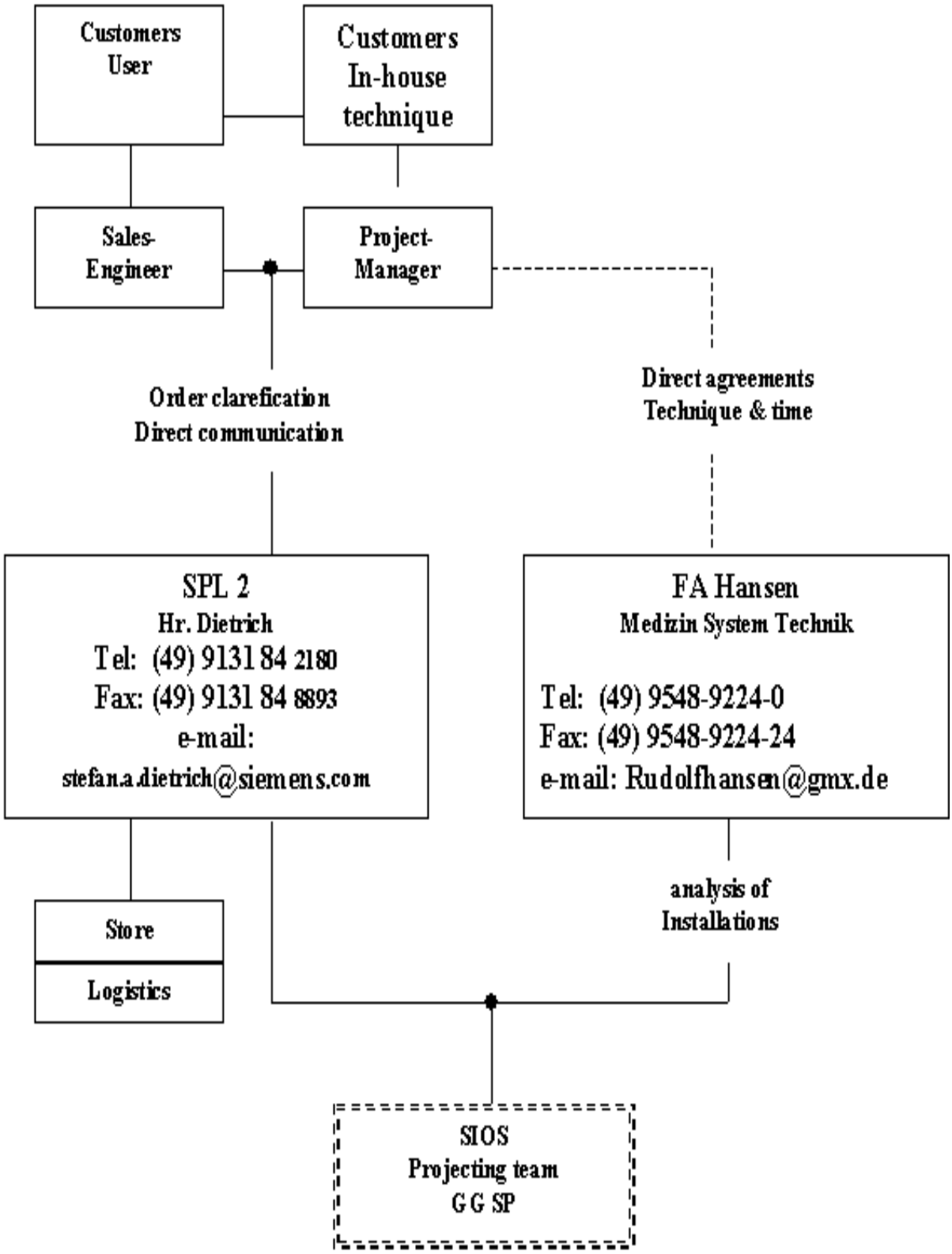
Project Management

The entire project is monitored and tracked from order entry to handover. All measures for stabilizing and optimizing all processes are controlled from there. Please pass along all information that may be of use to the appropriate contact person. The following is required:

1. Completed Project Checklist.
2. Materials checklist of the delivery.
3. Completed Installation Certificate with all remarks.
4. Handover Certificate of installation to the person performing startup (CSE).
5. Availability of equipment from other manufacturers that is to be operated from SIOS.
6. Startup Certificate with all remarks.
7. Handover Certificate for the customer's representative.

The certificates are evaluated in the responsible departments in PET.

Contact Persons for Communication



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Project Planning

Planning Basics

SIOS does not arise from any related system manufacture. A complete system is installed for the first time and put into operation at the customer's location.

SIOS makes 22 interfaces available that according to the order are enabled during initial startup or at a later time point.
This implies various possibilities for configuration and for management of planners, installers, startup personnel, users, technical service and sales.
To obtain full effectiveness and economic benefit, no variation from the specifications for room and project planning are permitted unless they are specifically authorized.

The primary difference desired from the version described here is installation of the electronics cabinet outside of the OR. This is not permitted under any circumstances!

Installation Requirements

The requirements for installation are different in accordance with a number of criteria and result in different time requirements for all steps of order planning:

- The number of systems/OR rooms to be installed
- Room and interface configuration
- Modality modernization, upgrade or new installation

NOTE	**All data in this PG are relevant to a system to be installed. If several systems need to be planned for a site, all times must be adapted.**

Modalities

Modernization = An OR in a surgical department is updated with SIOS.

Conditions

- SIOS interfaces are connected to existing in-house technologies; the majority of these technologies are used again.
- As a rule, central controls such as air conditioning, gases, voltage and emergency power supplies are not shut off for a room.
- OR use in the immediate vicinity may not be interrupted during normal working hours.
- Bringing in and disposing of large pieces of equipment, system components and rubbish is directly OR area.

Consequences

1. Work under internal hospital hygiene and procedural rules (intake and discharge).
2. Bringing in materials is subject to a special time and procedural plan.
3. Work hours may be outside of regular OR working hours (weekend and/or night).
4. All work should be performed within a discrete time period.
5. Interruptions should occur only when emergency measures are in effect.
6. Conduct construction activities under clean-room conditions (avoidance of dust and dirt; do not cause any disturbances in the OR area).
7. There should be direct coordination with other specialized occupations, in-house technical staff and the PM.
8. Make changes to plans and adaptations in discussion with the PM promptly and on your own initiative.
9. All SIOS on-site cables must be prepared under the same conditions as 1 to 7 by other specialized occupations (long lead time).
10. It is possible that the central air conditioning vents will have to be removed at the beginning of the installation.

Upgrade = A surgical department or a portion of it is upgraded with one or more SIOS.

Conditions

- SIOS interfaces are connected to existing in-house technologies; a portion of these technologies are used again.
- The installation area must be separated from the OR theater (protective partitions).
- OR activities may not be interrupted during normal working hours.
- Bring in and dispose of large equipment, system components and rubbish by opening and closing the protective partitions.
- Work in close proximity with up to 10 specialized workers at the same time; it must be possible to bring in and store tools and materials.

Consequences

1. There must be direct coordination other specialized workers, in-house technical staff and the PM.
2. Discuss any differences in planning (under 1.??) immediately.
3. Bringing in materials is subject to an internal time and procedural plan.
4. Bring in materials must be outside of regular OR working hours (weekend and/or night).
5. A preinstallation date for ceiling and room cabling must be set prior to HVAC, wall and floor work
6. A primary installation date must be set prior to closing up the drop ceiling
7. Selected preinstallation materials must be available at an earlier time.
8. The primary installation materials must be completely accessible on-site 24 hours/day by the time the second date is reached.
9. The interval between two installation dates varies according to the progress of on-site construction and cannot be planned exactly.

Modality

New Installation

Conditions

- On-site construction conditions and time plan for construction activities cannot be planned.
- The intermediate walls are installed following ceiling and HVAC work.
- Close cooperation between different specialized occupations.

Consequences

1. In the "worst case", three installation dates
2. Initial preinstallation is ceiling mounting and tandem interface prior to begin of HVAC work
3. Second preinstallation is laying room cables after building intermediate walls
4. Primary installation following conclusion of HVAC, wall and floor work; prior to closing up the drop ceiling

Time Plan

Pre- and Primary Installation

Modality A, Modernization

The complete SIOS installation must be completed within three days.
One installation date - 3 work days / 78 Mh
Begin planning at least **12 calendar weeks** prior to the scheduled installation date.

Modality B, Upgrade

The complete SIOS installation should be planned for two dates.

Date 1) Preinstallation, ceiling installation and room cabling (1 work day / 14 Mh)

Prior to installation of the air conditioning ducts in the ceiling

Date 2) Primary installation (3 work days / 45 Mh)

After completing wall and floor work. Prior to closing up the drop ceiling.

Begin planning at least **10 calendar weeks** prior to the first installation date.

Modality C, New Installation

The complete SIOS installation should be planned for three dates.

Date 1) Preinstallation, ceiling installation (1 work day / 10 Mh)

Orientation point for practical installation of the air conditioning ducts in the ceiling

Date 2) Preinstallation, room cabling (1 work day / 7 Mh)

After installation of the intermediate walls. Prior to wall and floor work

Date 3) Primary installation (3 work days / 45 Mh)

After conclusion of wall and floor work. Prior to closing up the drop ceiling.

The interval between the three installation dates varies according to the progress of on-site construction and cannot be planned exactly.

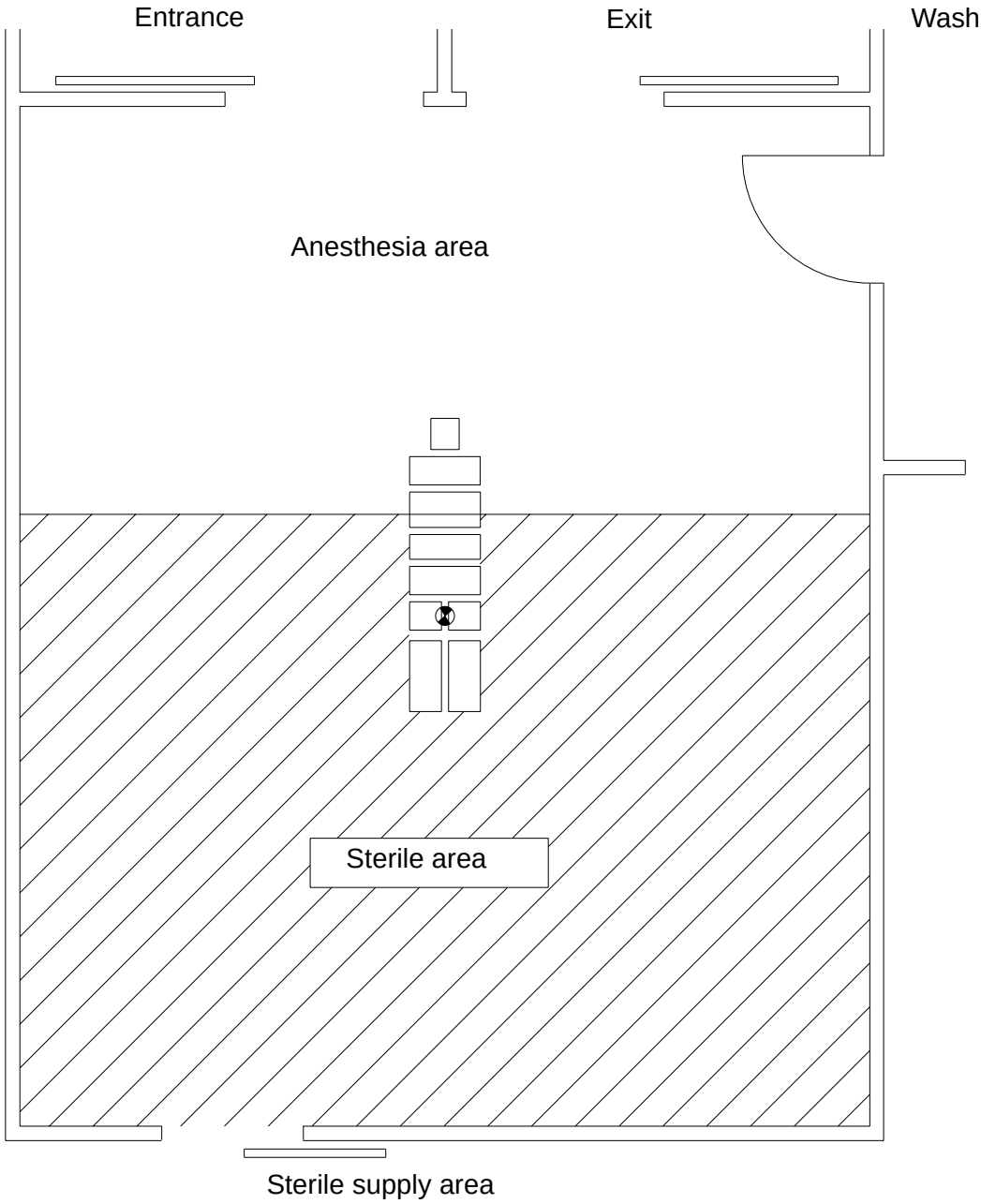
Begin planning at least **10 calendar weeks** prior to the scheduled installation date.

Startup

For all requirements, add an additional work day of 7 Mh to startup.

NOTE	**Availability of equipment from other manufacturers at the time that startup is performed. A representative from the customer or the manufacturer is responsible for this. External coordination must be taken into consideration to assure that there is a single startup date for all required functions.**

Anesthesia /Sterile Area



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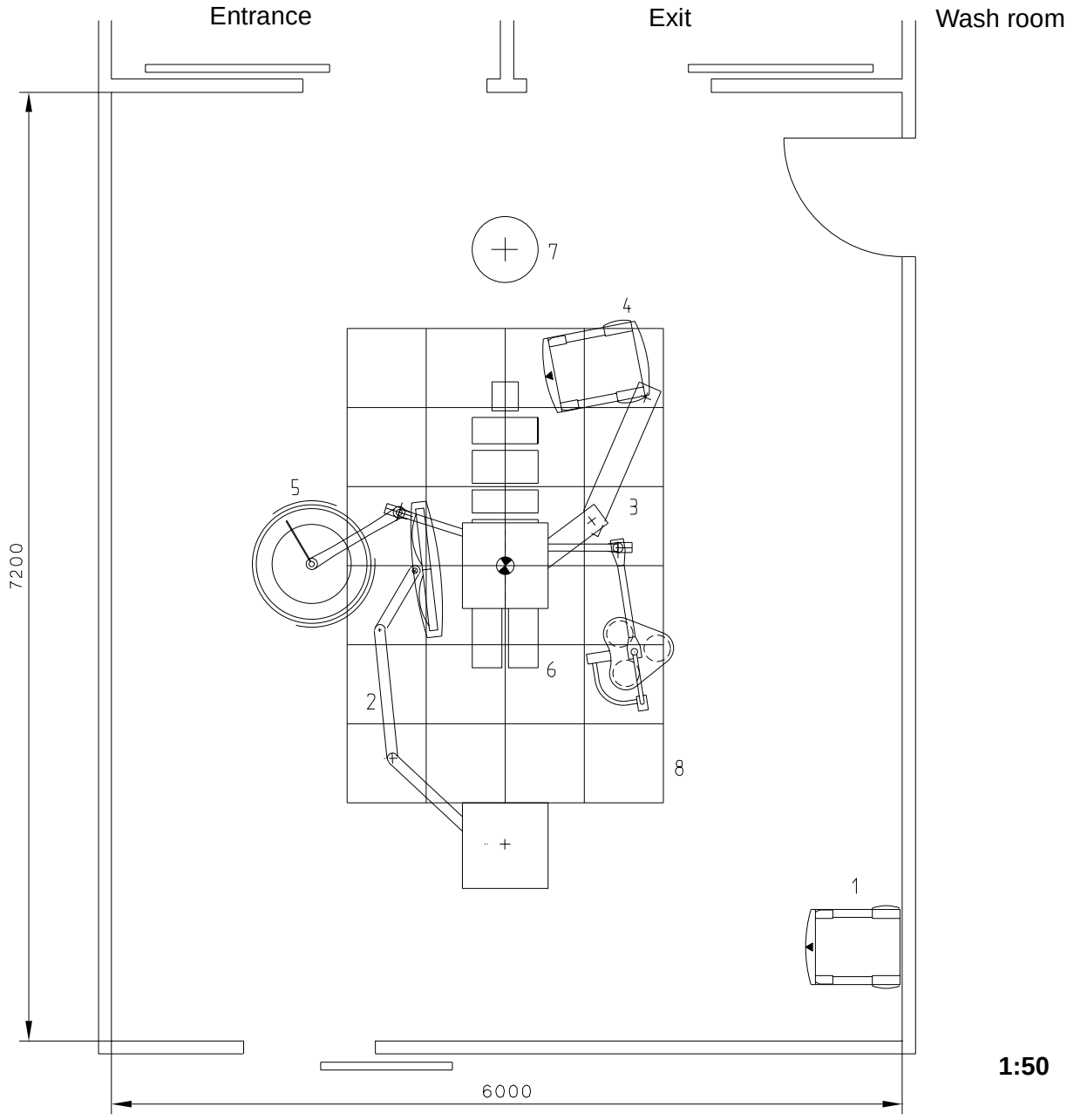
Room Planning Recommendation 1

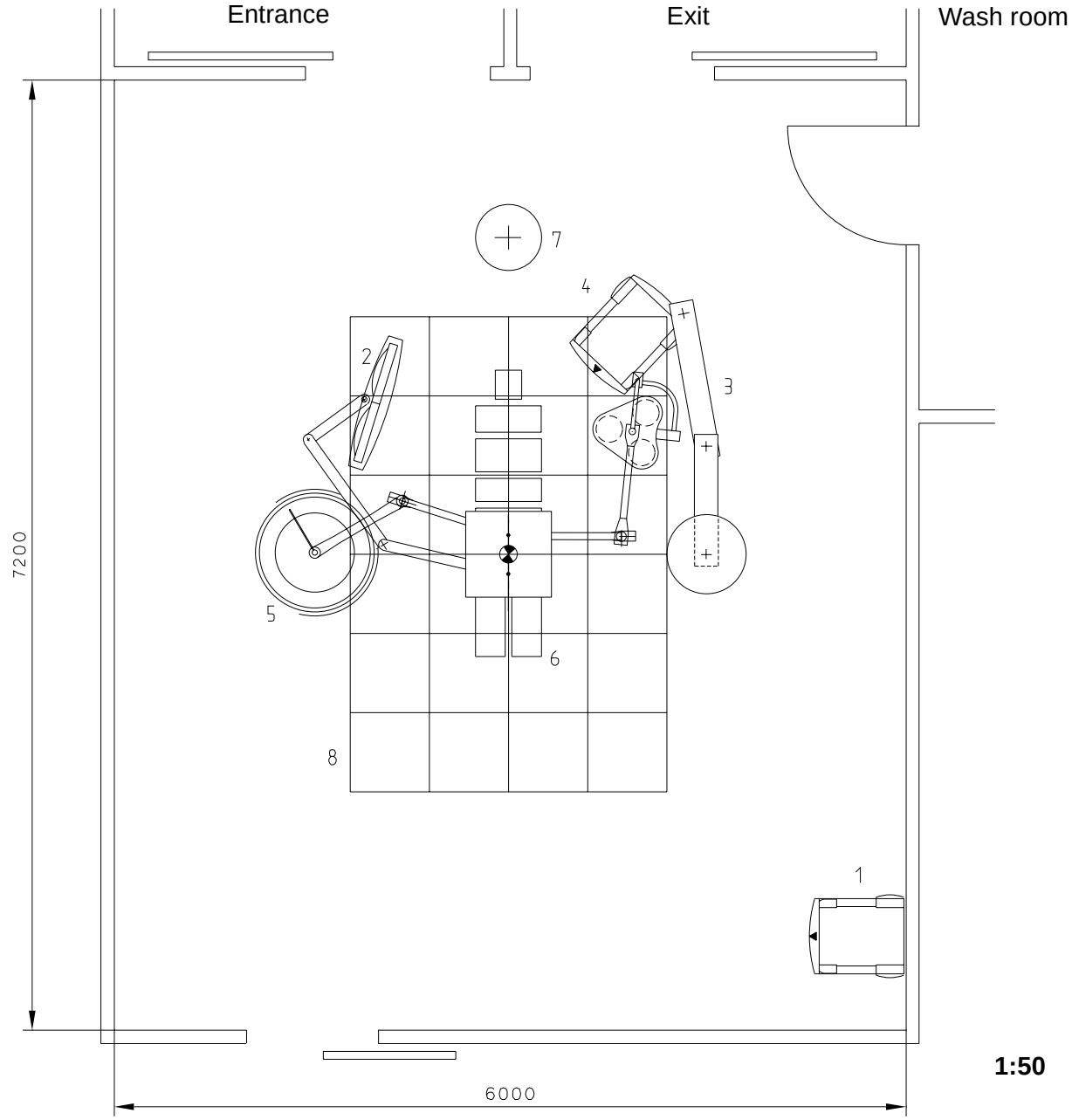
Recommendation for New Installation of Interdisciplinary OR



1 Electronics cabinet
2 SIOS display unit
3 Ceiling power supply for unit carriage
4 Unit carriage
5 Surgery lamp
6 OR table
7 Anesthesia arm
8 OR ceiling air vent

Room Planning Recommendation 2

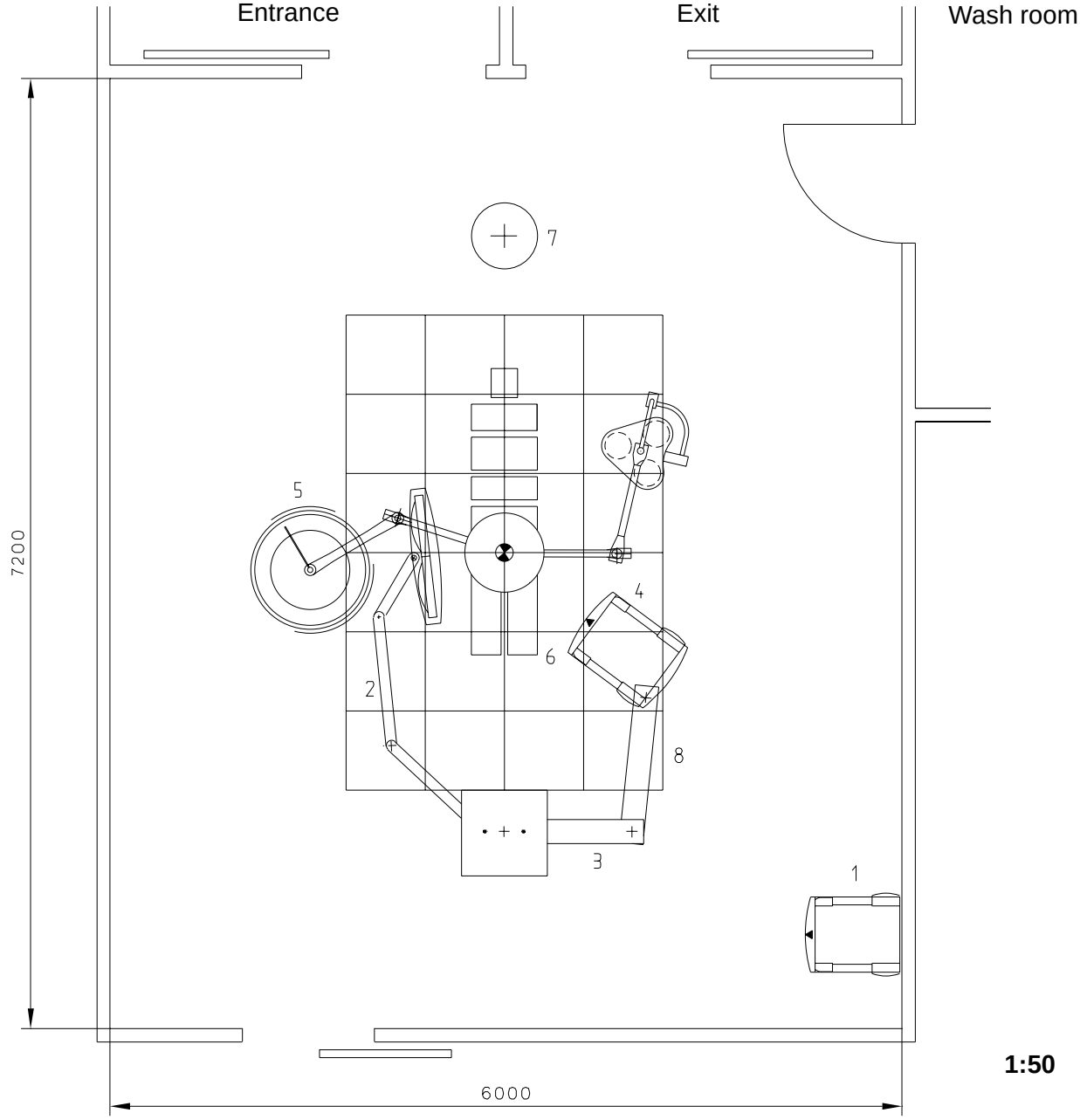
Recommendation for New Installation, Minimally Invasive OR



1 Electronics cabinet
2 SIOS display unit
3 Ceiling power supply for unit carriage
4 Unit carriage
5 Surgery lamp
6 OR table
7 Anesthesia arm
8 OR ceiling air vent

Room Planning Recommendation 3

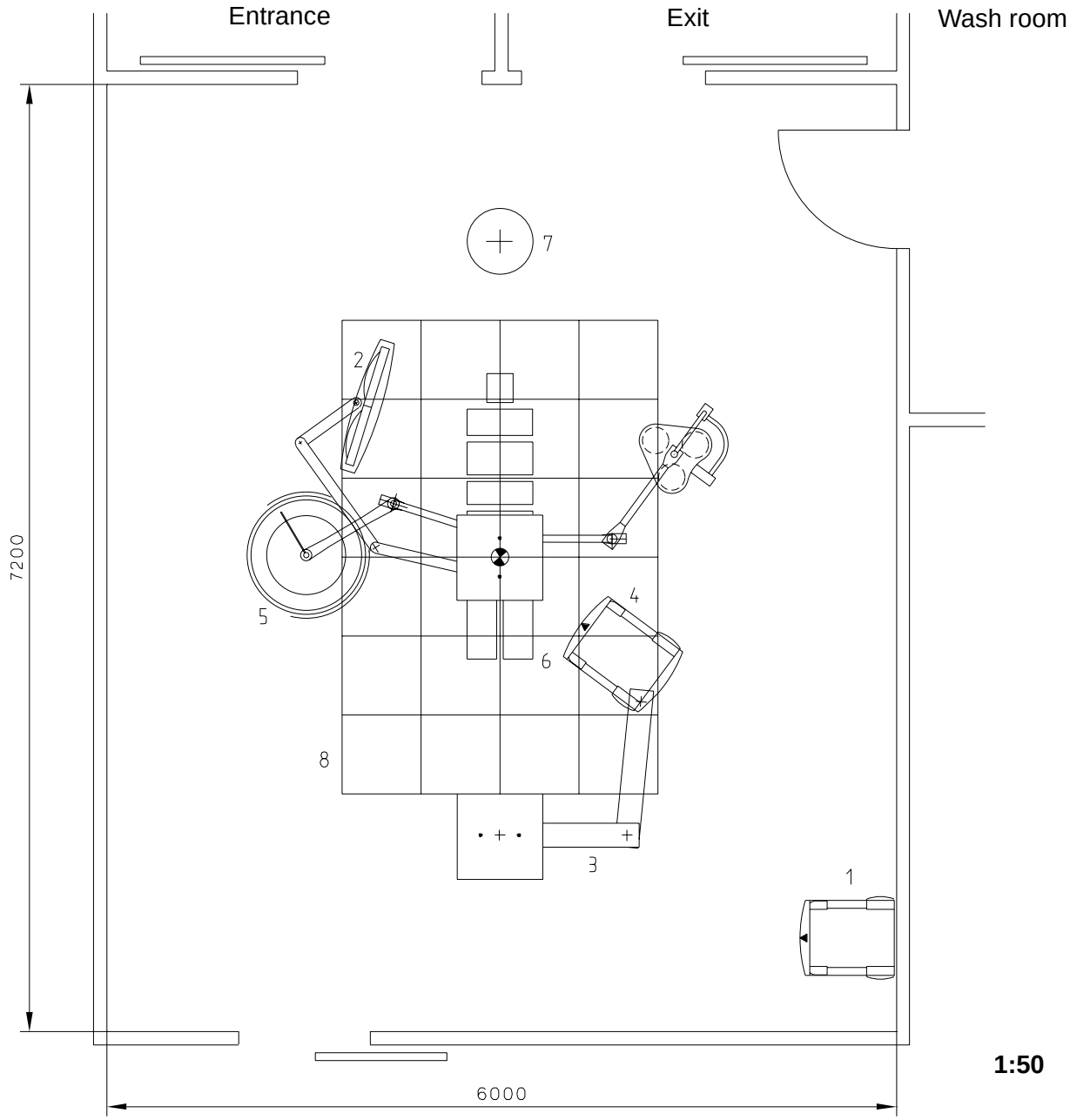
Recommendation for Upgrade/Retrofit of all Disciplines



1 Electronics cabinet
2 SIOS display unit
3 Ceiling power supply for unit carriage
4 Unit carriage
5 Surgery lamp
6 OR table
7 Anesthesia arm
8 OR ceiling air vent

Room Planning Recommendation 4

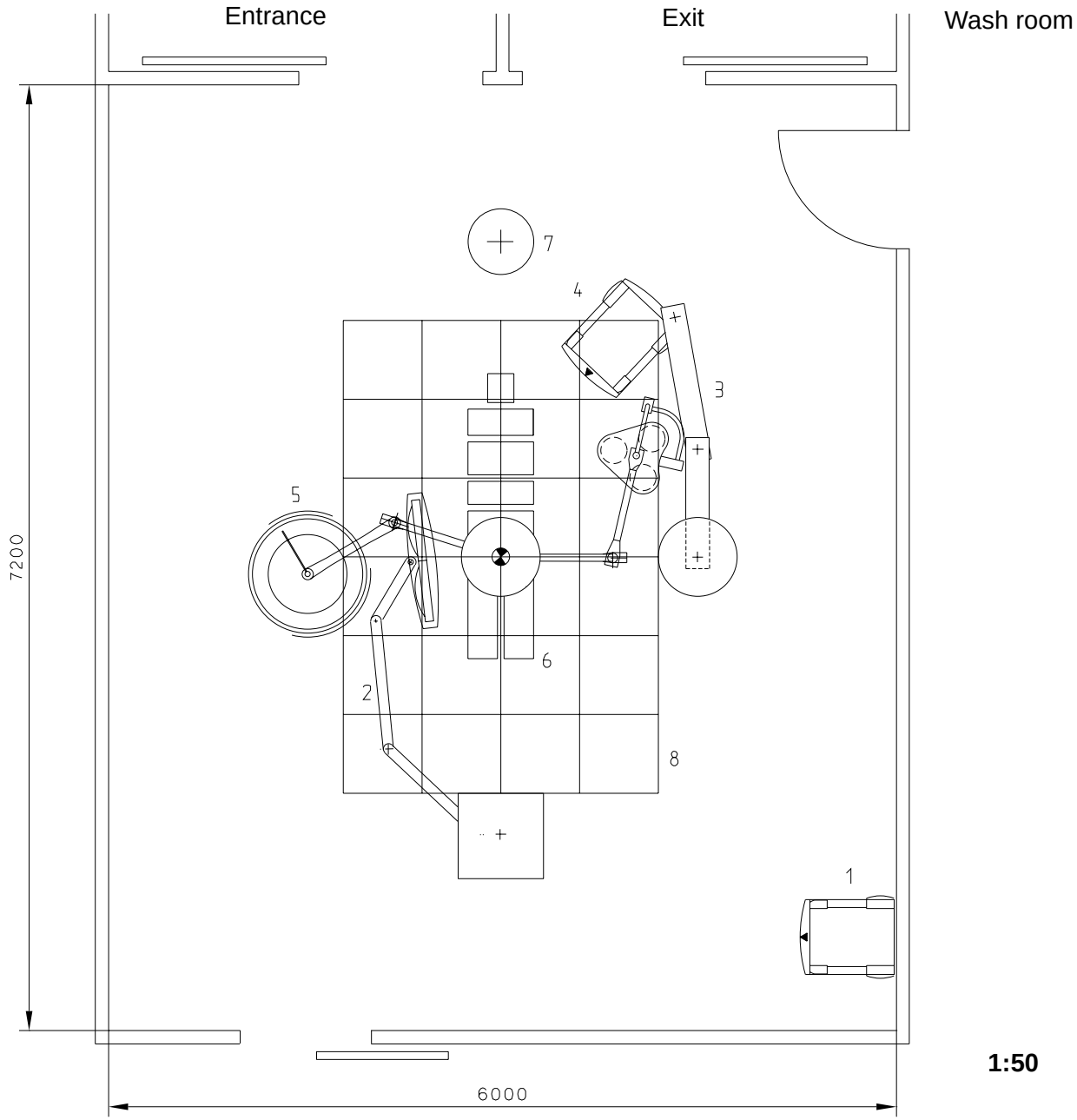
Recommendation for Retrofit when using Existing Ceiling Construction



1 Electronics cabinet
2 SIOS display unit
3 Ceiling power supply for unit carriage
4 Unit carriage
5 Surgery lamp
6 OR table
7 Anesthesia arm
8 OR ceiling air vent

Room Planning Recommendation 5

Recommendation for Retrofit with Less than Favorable Room Conditions



1 Electronics cabinet
2 SIOS display unit
3 Ceiling power supply for unit carriage
4 Unit carriage
5 Surgery lamp
6 OR table
7 Anesthesia arm
8 OR ceiling air vent

Placing of System Components in the OR

Ceiling cabling to the unit carriage is positioned according to the customer’s request.

The unit carriage can be at any position around the OR table. The anesthesia room is excepted from this.

The electronics cabinet (ES) is positioned outside of the in and out movement paths of the OR table. It can be installed in the corner of a room, but must be accessible from at least one side and from the front. Installation outside of the OR in an alcove is not permitted.

NOTE

Electronics cabinet always in OR

For operation, configuration, maintenance, service and emergency situations, the electronics cabinet in the OR must be accessible from the front and one side. Installation outside the OR is not permitted.

Space to accommodate a future data terminal (DT) must be left directly next to the electronics cabinet. Minimum space required is for a console on which to place a 15" flat screen monitor, a PC keyboard and a mouse (approx. 1m²).

Overview of On-site Measures

1. Electrical installation:

- Line power: 230 V/50 Hz (25 A) or 110 V/60 Hz (25 A)
- Adaptations are made at the control console
- Additional cabling for lighting control (24 x 0.75^2)
- Modem connection: analog / connection sockets conforming to national standards with separate number and national telephone hookup (telephone / pager system wiring).
- Data network (customer system with RJ45 connectors)

2. Gas installation to the ceiling stand for unit carriage:

- Compressed air line (5 / 7 bar)
- Air motor return
- CO_2 connection
- Vacuum

3. Establishment of a central CO_2 supply
4. Adaptation or installation of the ceiling sub-construction (Unistrut)
5. Adaptation of air conditioning ducts in the ceiling (if present)

Pivot Radii

Extender plus Spring-loaded Arm for Display Unit

Tandem rotation point (1/Fig.1) for surgery lamps. Lamps rotate 360° below monitor support arms with no stop.
Tandem rotation point (1/Fig.1) for stand unit carriage, rotates above the monitor support arms.
With the Support Arm II option, the pivot radii are identical (2/Fig. 1).
The radii for the monitor trolley system (3/Fig.1 - MTS) is specially designed.

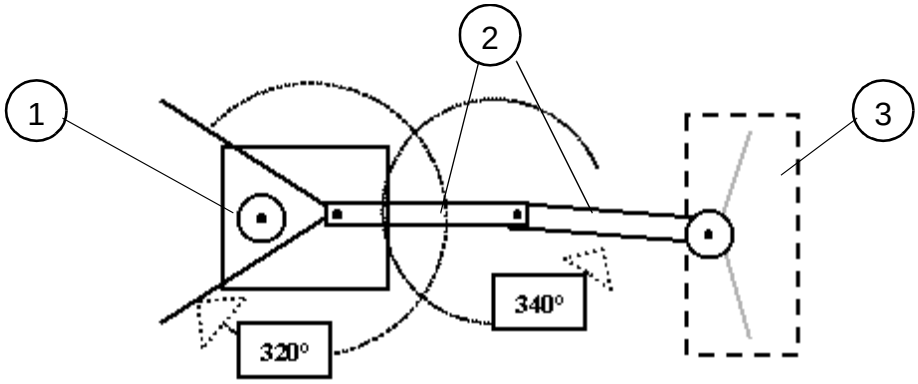


Fig. 1

Ceiling Stand for Unit Carriage

Extender 1 (1/Fig. 2) with end stop adjustable to 0° - 350°. Extension arm combinations in:

Single 800 or 1200
Dual 800 + 800 or 1000 + 1200

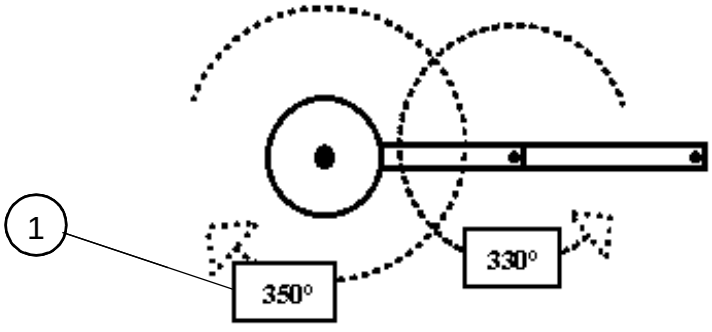


Fig. 2

Monitor Support

Standard version support mount (1/Fig. 3) with 2 satellite arms (2/Fig. 3) for one 15" and one 18" TFT monitor. Mechanical mount for monitors (3/Fig. 3)

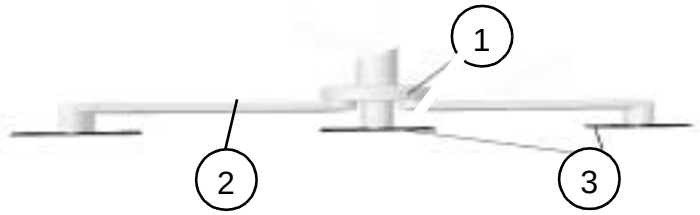


Fig. 3

Pivot radius of the support mount (Fig.4).

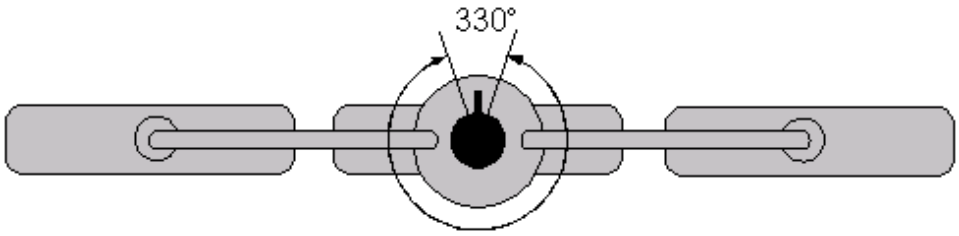


Fig. 4

Satellite arm pivot radii (Fig.5).

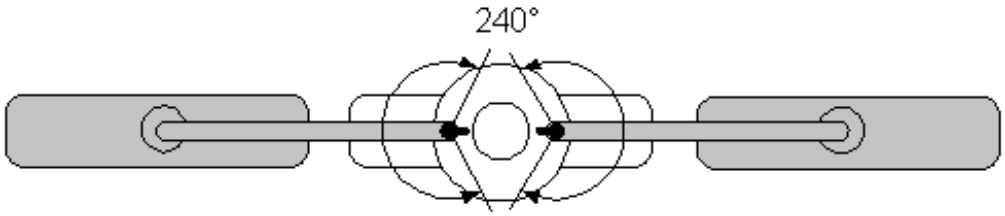


Fig. 5

Monitor pivot and tilt radii (Fig.6).

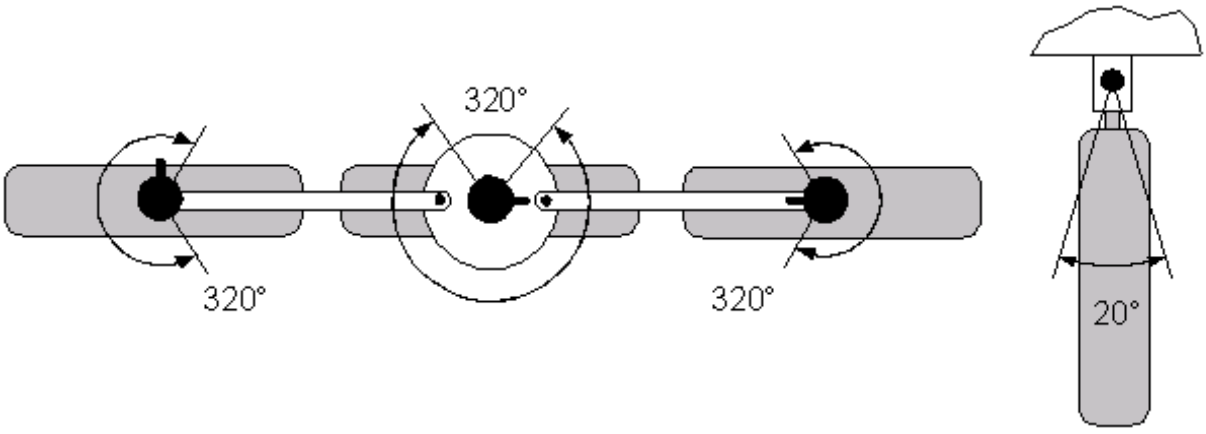
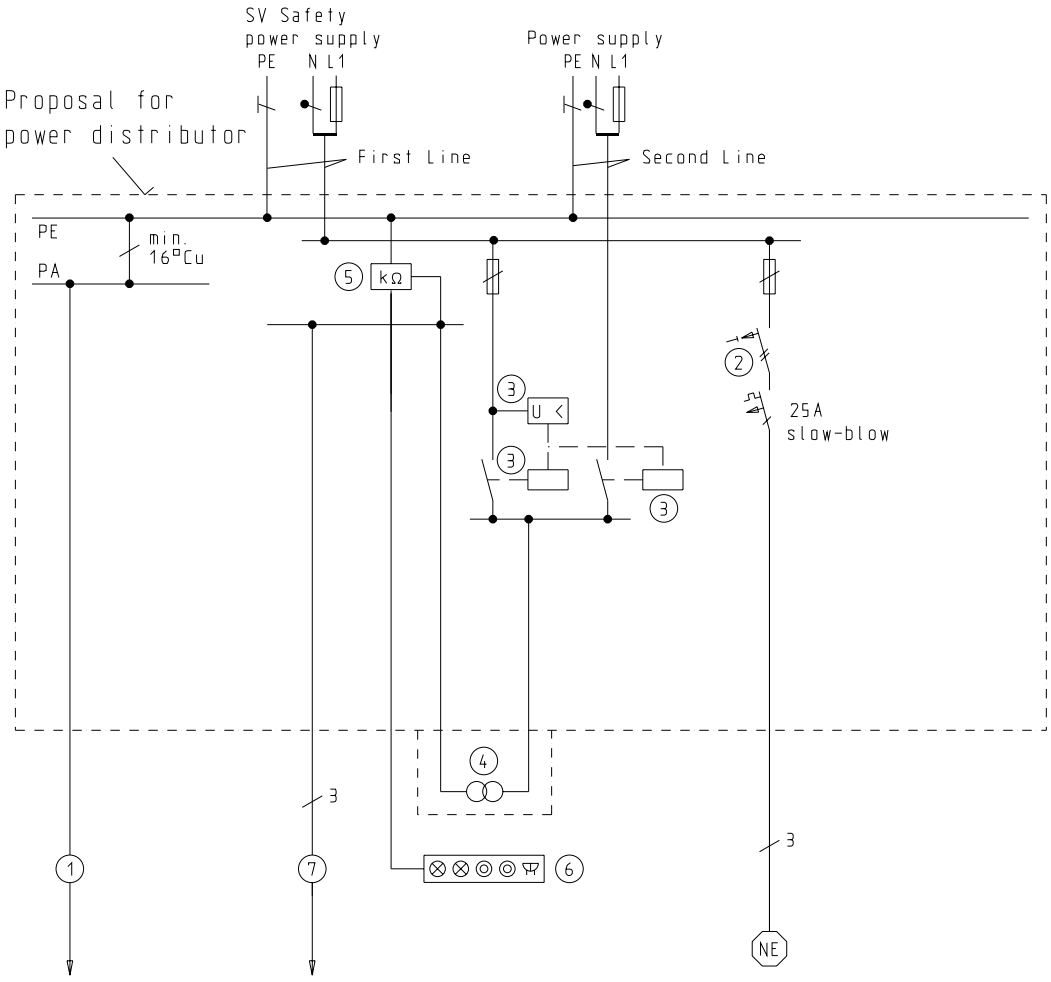


Fig. 6

On-site Electrical Installation per DIN VDE 0107

Recommendation for on-site power distributor per DIN VDE 0107 or national regulations



1. To external conductive parts
2. FI switch IdN = 30 mA for AC and pulsed as well as smooth DC fault currents.
3. Voltage monitor and toggle device per DIN VDE 0107
4. Isolation transformer with overload monitoring
5. Isolation monitor
6. Message assembly
7. Fixed and movable electrical consumers

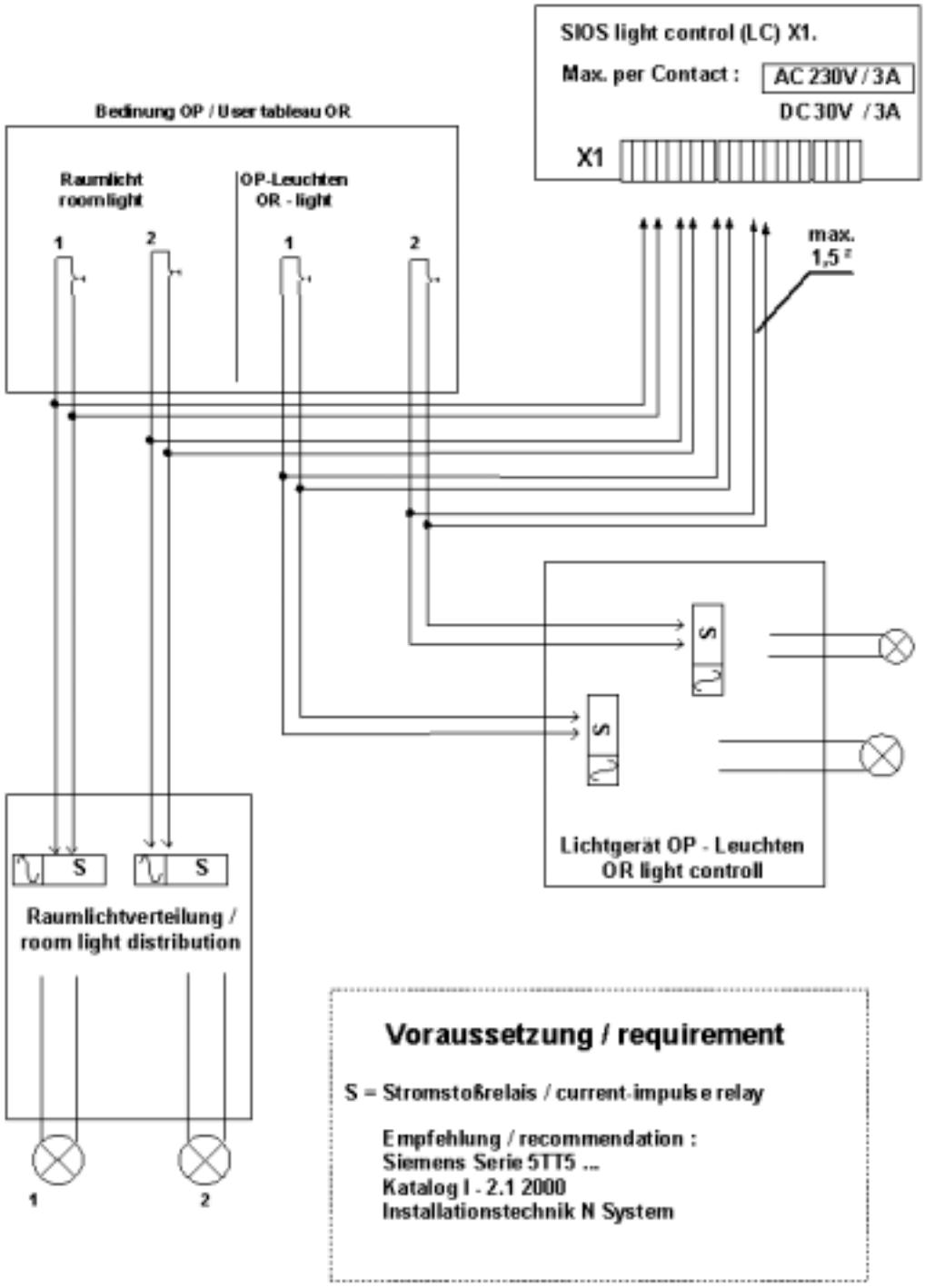
NE Power outlets, electronics cabinet, in-house data network and telephone line

OR Control Console

Installation Example

Switches must be installed in the console that can be operated parallel from the SIOS controller.

The cables between the control console and the SIOS electronics cabinet must be prepared on-site (24 individual cables with 0.75^2 - 1.5^2 cross-section).

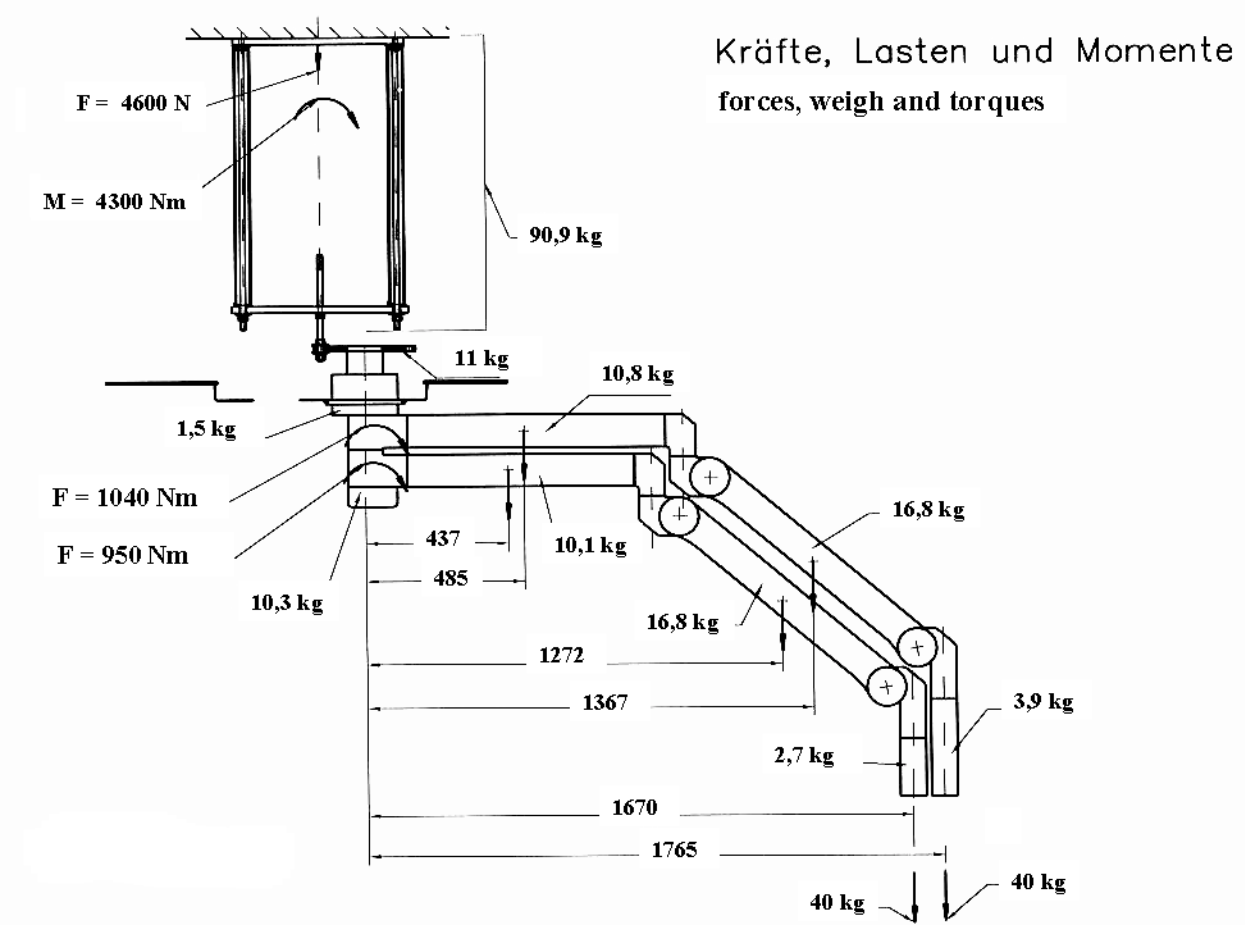


Ceiling Loads

Tandem Ceiling Mount for Monitors

If the load capacity of the structural ceiling is insufficient, a counterplate must be installed over the structural ceiling (template in the following section).

If girders, conduits, cables, etc. are positioned below the structural ceiling, alternate construction or subconstruction must be constructed.



Ceiling Anchor Plate

Fig. 1 - Insufficient Ceiling Load Capacity

Template for drilling the structural ceiling to set a counterplate above the structural ceiling. The counterplate should be constructed on site and installed using M20 threaded rods. The ceiling anchor plate is included in the SIOS shipment.

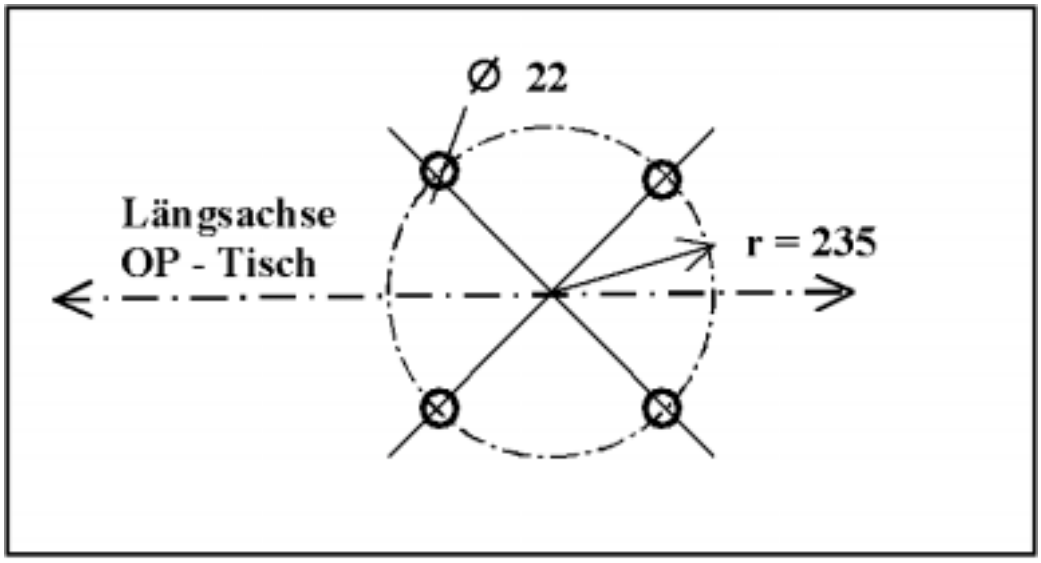
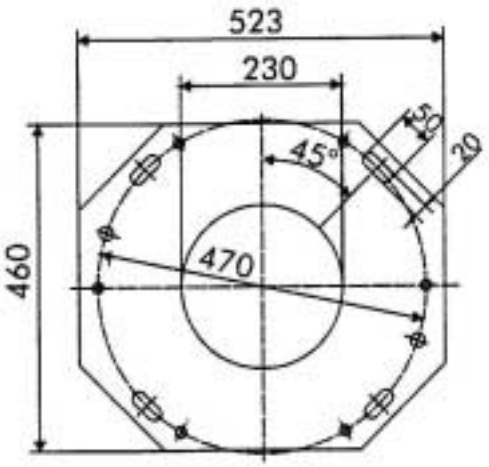
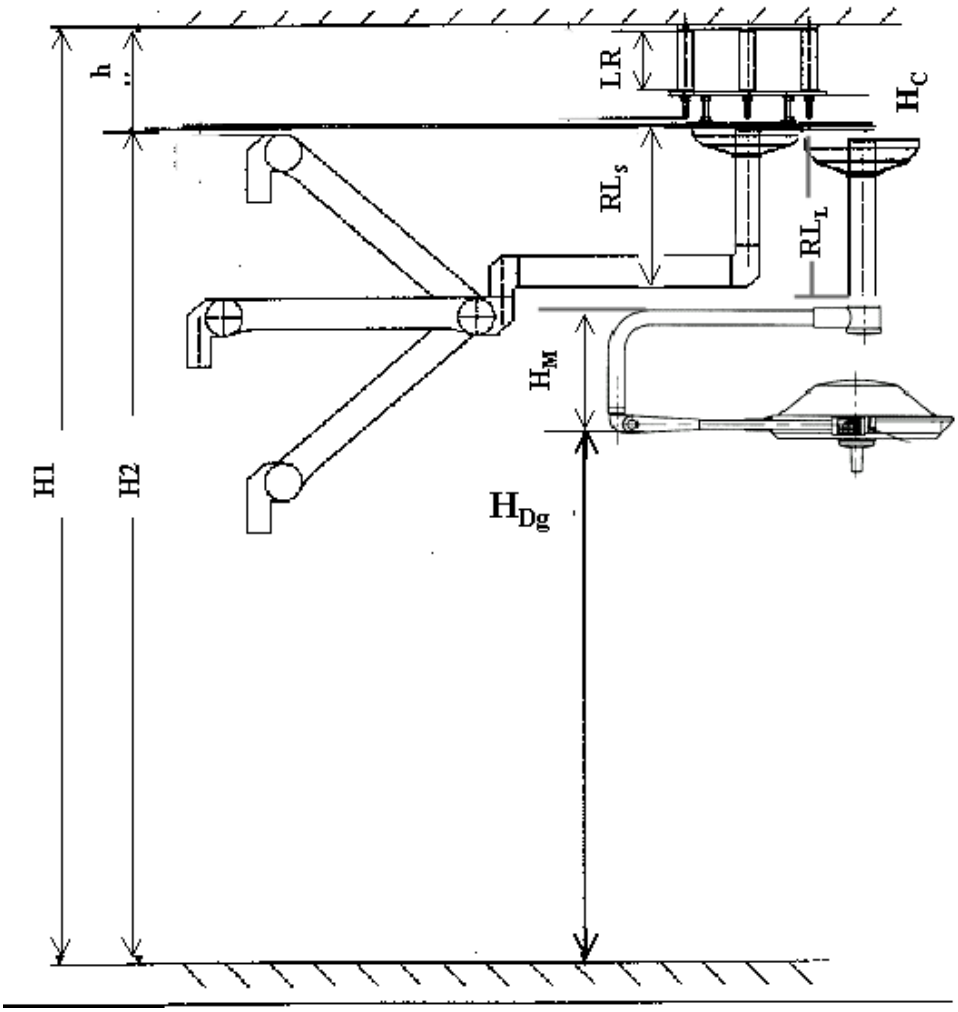


Fig. 2 - Subconstruction

Template for ceiling subconstruction for direct mounting of the ceiling anchor plate or tandem interface plate.



Room Height



	Height	Min.	Max.	Comment
H_{Dg}	Effective height	2000	n.a.	
H1	Floor-structural ceiling	3200	4050	
H2	Ceiling-structural ceiling	3000	3200	
h	Drop ceiling-structural ceiling	200	1050	
H_M	Surgery lamp manufacturer dim.	100	680	*1)
H_V	Height variance	1000	1150	
LR	Mounting tube	190	850	LR = 0 if H1 < 3390
H_C	Interface plate flange	110	200	
RL_S	SIOS flange tube	450*	510**	Fixed dimension- * single arm; ** dual arm
RL_L	Lamp flange tube	500	500	

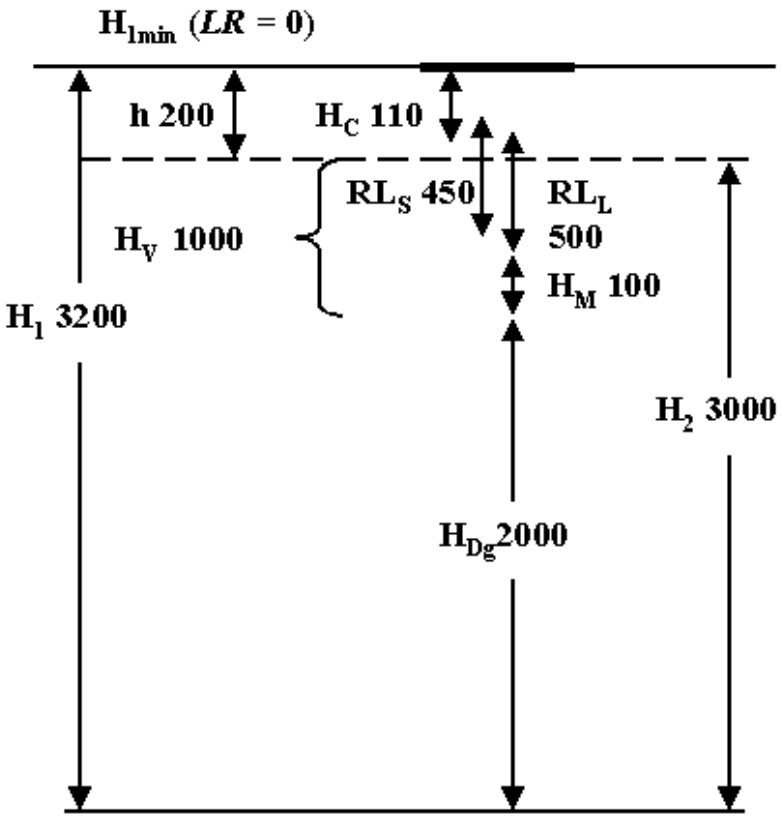
*1 Determined by type of lamp and number of extenders (depending on manufacturer).

Effective Height

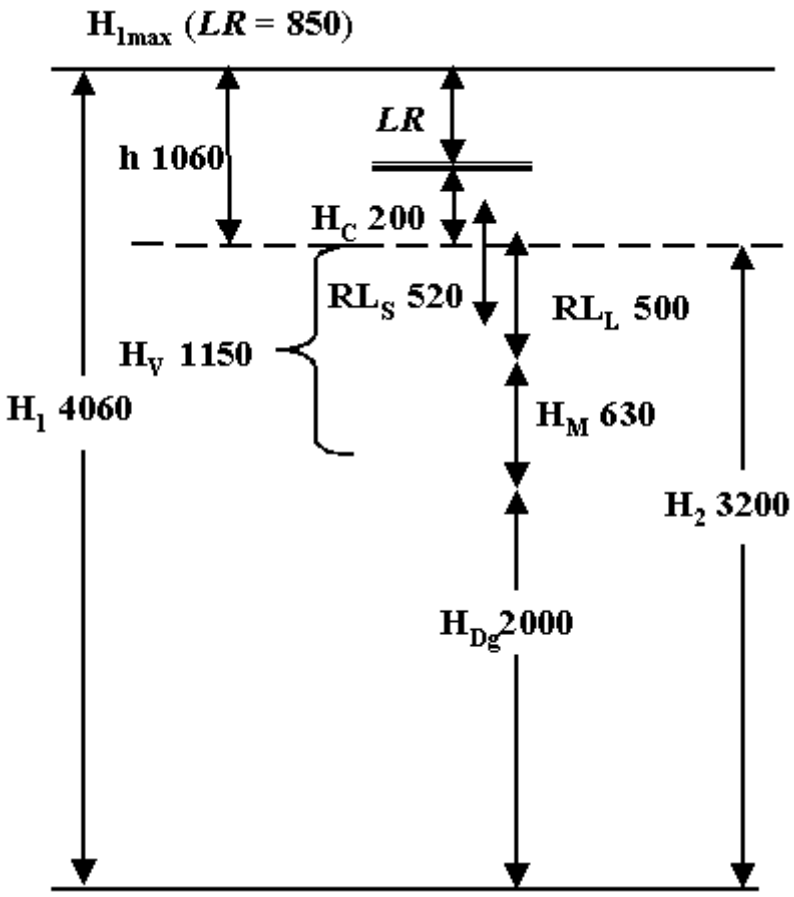
The minimum dimension of the effective height is 2000 mm and refers to the lowest part of all components whose height cannot be adjusted. As a rule, this is a part on the surgery lamp(s).

If the min. / max. dimensions in the following table for the room height cannot be maintained due to construction reasons, the SIOS ceiling construction must be planned without the surgery lamp. When this is the case, as a rule the SIOS monitor trolley must be planned at the foot end of the patient table.

Minimum Room Height



Maximum Room Height



Unit Carriage Ceiling Stand

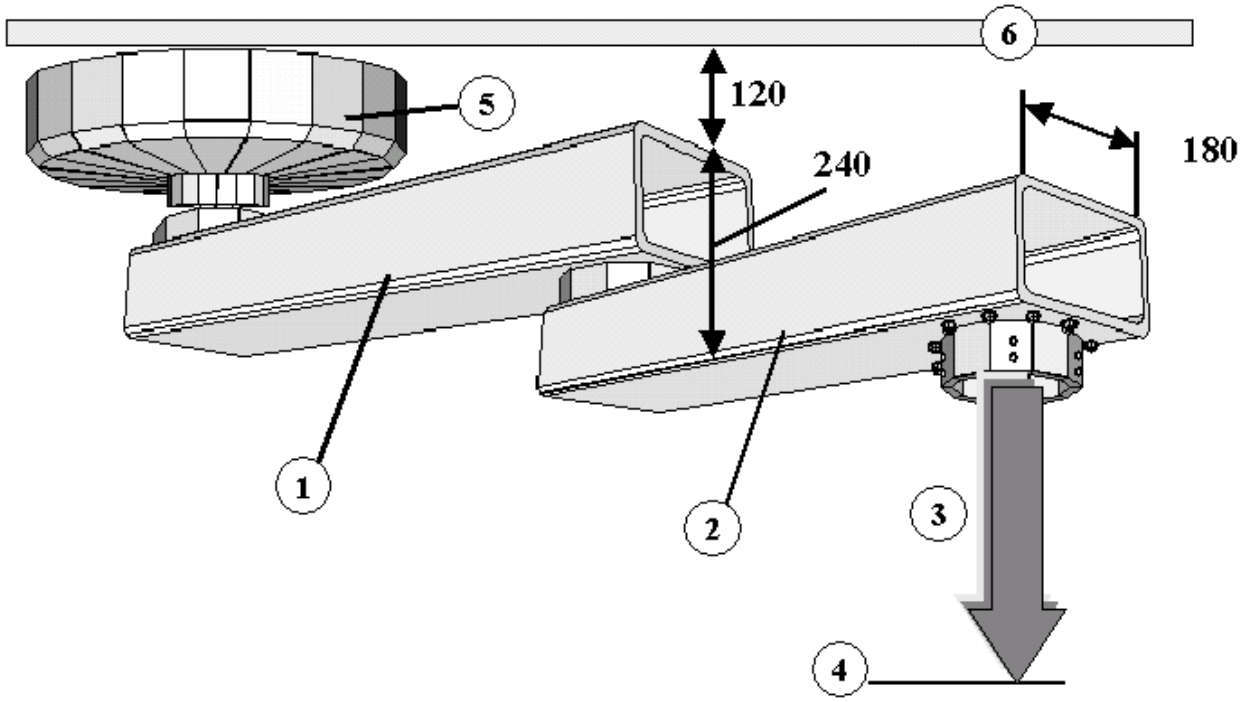


Fig. 1

Fig. 3 /	Designation
1	Extender 1
2	Extender 2
3	Unit carriage cables
4	Cables to unit carriage mounting point 950 mm above the floor
5	Round centering fixture
6	Drop ceiling

Extenders 1 and 2 are available in four combinations:

single	800 / Mat.No. 55 37 092
single	1200 / Mat.No. 55 37 100
1 & 2	1600 (800 + 800) / Mat.No. 55 37 118
1 & 2	2200 (1000 + 1200) / Mat.No. 55 37 126

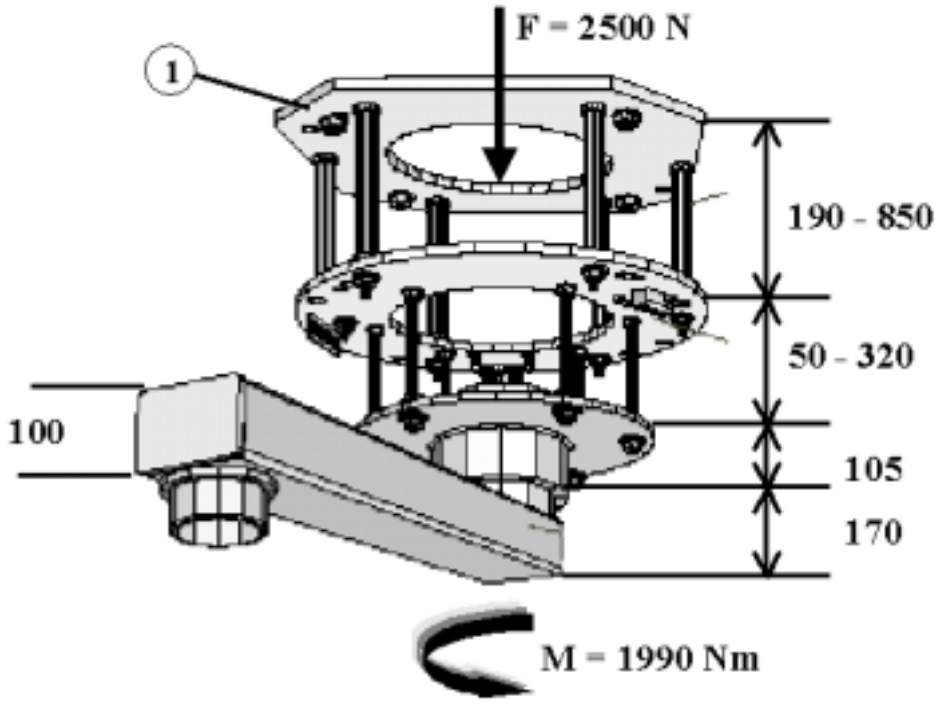


Fig. 2

All anchor plate dimensions (1/Fig.4) are identical to the anchor plate on Page 3 - 4. If the ceiling height is lower, the interface plate can be mounted directly on the structural ceiling without the anchor plate.

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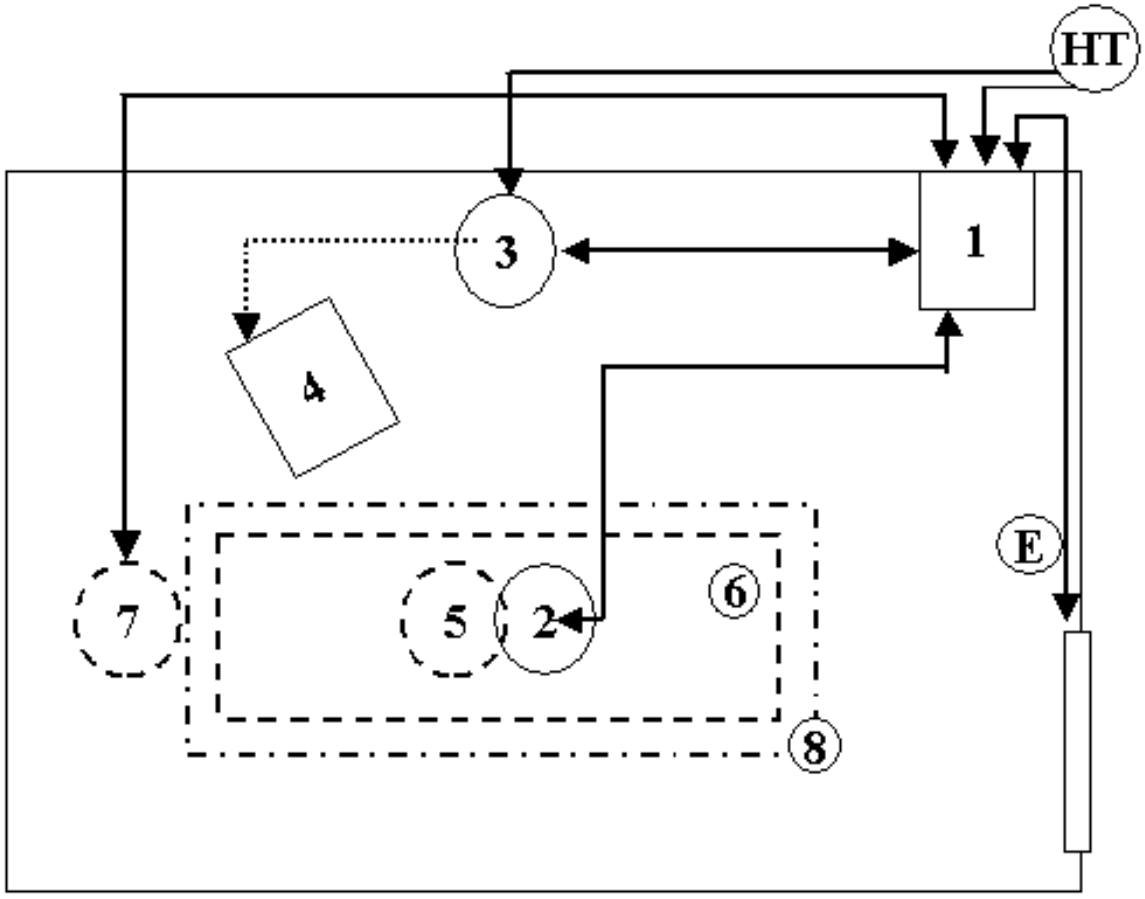
Remarks Regarding Laying Cables

- Determine Points 1 to 4
- Install the ceiling anchors in accordance with this determination.
- The interface for the gas lines is at Point 4.
- Conduit with a dia. of 100 mm from Point 1 to 2 and 1 to 3.
- Conduit with a dia. of 30 mm from 1 to Point E.
- Conduit with a dia. of 30 mm from 1 to Point 7.
  - Conduit from 1 to the various HT points; distribution or power for 230 V/ modem / video / data.



Position	Designation	Position	Designation
1	Electronics cabinet	6	OR table
2	Display unit	7	Anesthesia arm
3	Unit carriage ceiling stand	8	Ceiling air vent
4	Unit carriage	E	OR control console
5	Surgery lamp	HT	In-house supply

Laying Cables

Electronics Cabinet

All external and internal system cables are led through opening into the cabinet. There are two versions possible. Led into the cabinet from above 1/Fig. and into the back wall 2/Fig.

Surface mounted cable channel 150 x 70 (Fig.) centered to cabinet from the bottom surface of the drop ceiling to the top surface of the cabinet. Required cable length in the cabinet: 2.5 m.
Cable channel into the intermediate wall opening of 150 x 150 (Fig.), to behind the cabinet, centered. Required cable length in the cabinet: 1.5 m.

1/Fig. = raw ceiling; 2/Fig. = drop ceiling

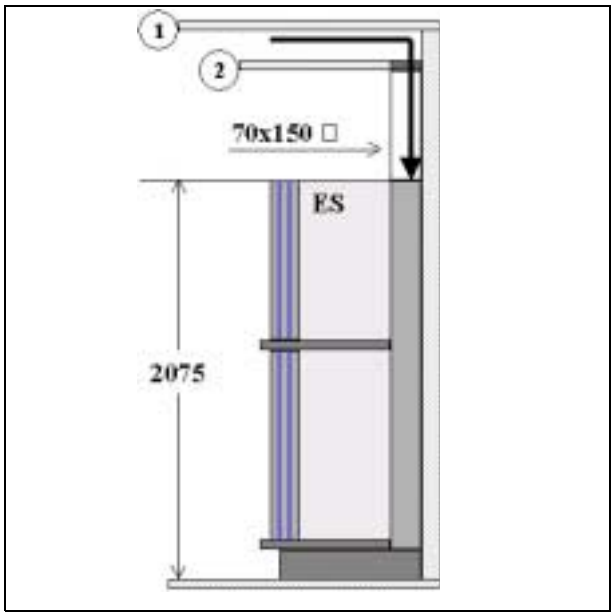


Fig. 1

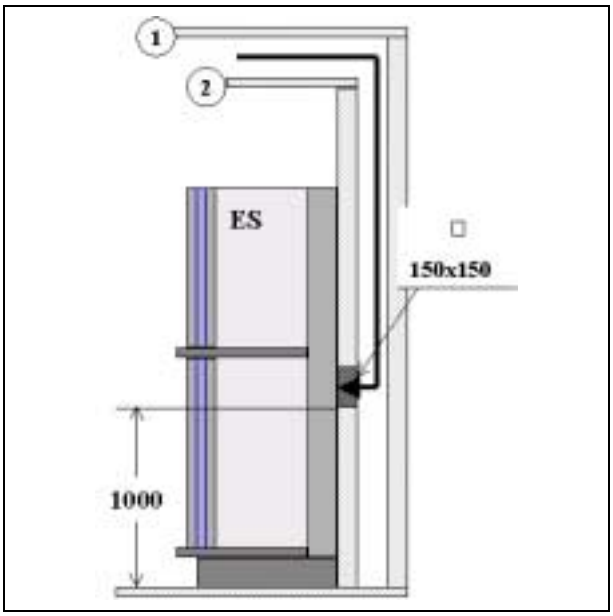
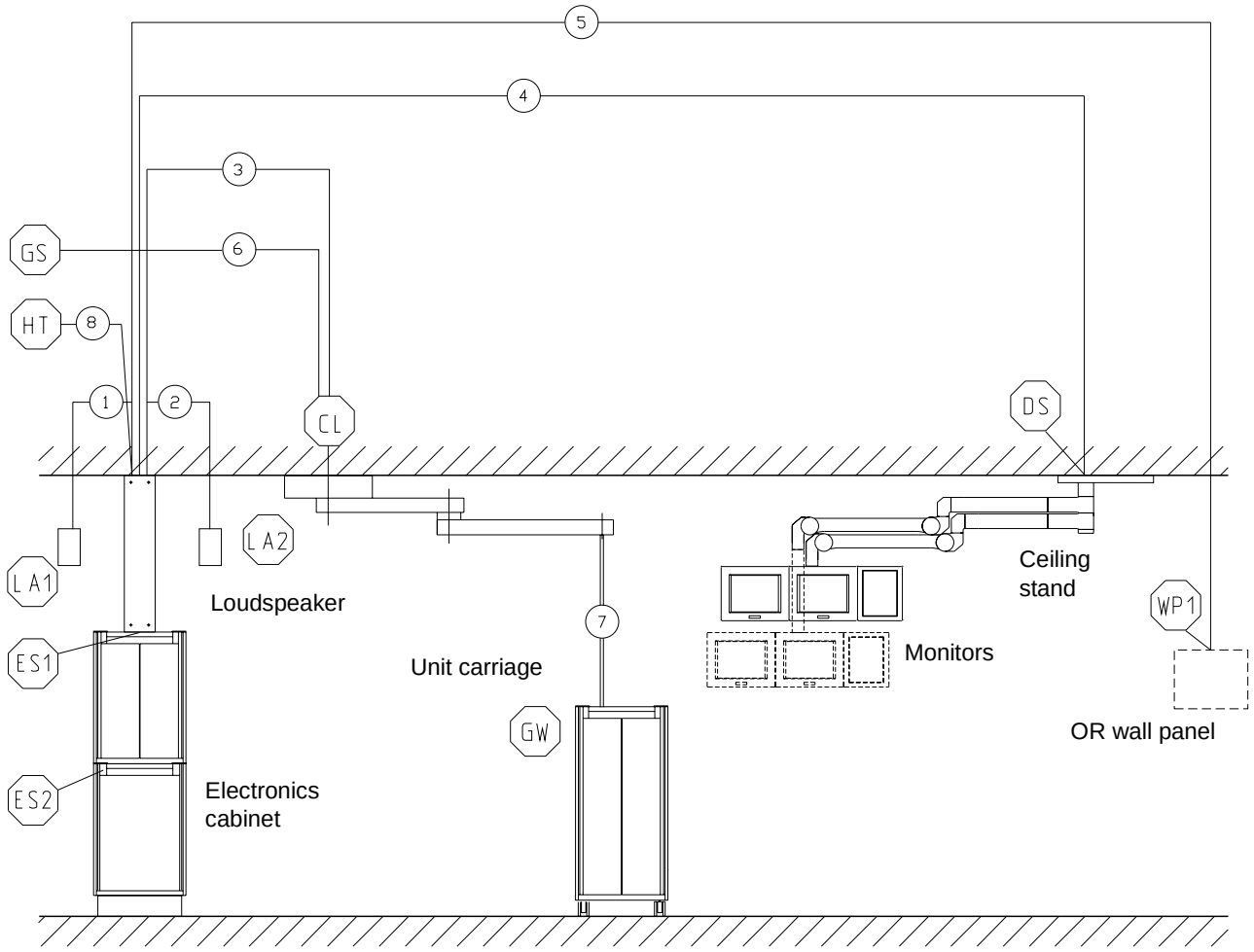


Fig. 2

Overview of Fixpoints



Fixpoint List

Wiring harness No.	from Fixpoint	to Fixpoint	Cable channel cross-section in mm^2	Conduit, dia. in inches	Minimum opening in mm	Maximum fixpoint distance in m	Remark
1	ES2	LA1	300	3/4	30 x 10	10	System cable
2	ES2	LA2	300	3/4	30 x 10	10	System cable
3	ES1	CL	175	4	Ø 100	17	VK2 system cable
4	ES1	DS	150	4	Ø 100	13	VK5/1 + VK5/2 system cables
5	ES1	WP	500	3/4	Ø 20	n.a.	Room cable, light controls
6	GS	CL	—	n.a.	n.a.	n.a.	Gases from central supply
7	CL	GW	—	n.a.	n.a.	6	VK1/3 system cable
8	HT*	ES2	—	n.a.	n.a.	n.a.	In-house system cable
							230 V line power
							Modem
							Data network
							Video in
							Video out

HT* = Fixpoints for the in-house system cabling are specified by the on-site conditions.

List of Fixpoints Used

Fixpoint	Designation	Remark
GS	Gas supply	
HT	In-house cables	
LA1	Loudspeaker 1	Wall installation or in the drop ceiling
LA2	Loudspeaker 2-	
ES1	Electronics cabinet Top inlet	Top inlet 2 m above the floor / connection length in cabinet 2.5 m, see Page 4-2
ES2	Electronics cabinet	Rear inlet 1 m above the floor / connection length in cabinet 1.5 m, see Page 4-2
CL	Ceiling power supply, unit carriage	
GW	Unit carriage	
DS	Ceiling system	
WP	Control console	Light control

System Component Power Data

Component	Line Power V	Fuse A	Power Consump-tion kVA	Heat Dissipation W
Complete system	110/120/127/200/230 ±10% 50/60Hz, ±1Hz	external 25 slow-blow	2.90	1200
Unit carriage	internal 230; 50 Hz	internal n.a.	(1.65 / *1)	1650
TFT operating monitor	internal 12	internal n.a.		50
TFT image monitor	internal 230; 50 Hz	internal n.a.		70

*1 Individual power consumption of the unit carriage in the emergency power mode; during normal operation, included in the power consumption for the entire system of 2.9 kVA.

Environmental Conditions

SIOS	Operating	Transport / Storage
Adm. ambient temperature	+ 10° C ... + 28° C	- 20° C ... + 40° C
Adm. rel. humidity	30% ...75% non-condensing	10% ... 100%
Atmospheric pressure	70 kPa ... 106 kPa	70 kPa ... 106 kPa

Paint Colors

	Surface	Color		Siemens Code
Primary color	Metal / plastic	White	corresponds to RAL 9002	610
Base color	Metal	Medium basic gray	n.a.	701
Design color	Plastic	Medical blue	n.a.	750
Monitors	Plastic	Anthracite	n.a.	614
Design profile	Aluminum	Silver-gray	corresponds to RAL 9006	n.a.

System Component Dimensions

Component	Dimensions L x W x H (mm)	Weight (kg)
Electronics cabinet	785 x 630 x 2075	150
800 ceiling power supply (55 37 092) for unit carriage(*1)	800 x 180 x 100	23
1200 ceiling power supply (55 37 100) for unit carriage (*1)	1200 x 180 x 100	32.2
1600 ceiling power supply (55 37 118) for unit carriage (*1)	800 x 180 x 100 plus 800 x 180 x 100	23 + 23
2200 ceiling power supply (55 37 126) for unit carriage (*1)	1000 x 180 x 100 plus 1200 x 180 x 100	27,6 + 32.2
Unit carriage	785 x 630 x 1430	100
Ceiling mount (*2)	Ceiling plate	48
	Interface	45
	Space arm	60
Monitor trolley (*2)	Trolley	4
	Arms	2
18" TFT monitor	120 x 460 x 480	4
15" TFT monitor	80 x 310 x 480	3

*1 Version depends on the order.

*2 Dimensions can be found in the drawing.

Transport Routes and Packaging

Material	L x W x H (mm)	Weight incl. packaging (kg)
Largest crate	800 x 800 x 1700	100
Corridor/door opening (without packaging)	min. W 850 x H 2000	n.a.
Preinstallation		
Ceiling mount	800 x 1200 x 400	48
Tandem interface plate	800 x 1200 x 400	45
Ceiling power supply for unit carriage	1400 x 700 x 800	73
Room cabling	1000 x 700 x 800	45
Primary installation		
1 electronics installation kit	1200 x 800 x 1600	65
2 Space arm	800 x 1200 x 500	60
3 MTS (Monitor Trolley System)	800 x 1200 x 400	6
4 DE cabinet (top section)	800 x 800 x 1200	30
5 ZE cabinet (bottom section)	800 x 800 x 1500	55
6 Unit carriage	800 x 800 x 1700	100

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Preinstallation Shipment

Depending on the installation and date conditions, the preinstallation materials can be shipped individually.

Preinstallation Materials	**MAT_No.**
Preinstallation Kit, compete	44 24 441
Comprised of:	
Ceiling mount	55 36 276
Tandem interface plate	55 36 615
800 ceiling power supply for unit carriage (*1)	55 37 092
1200 ceiling power supply for unit carriage (*1)	55 37 100
1600 ceiling power supply for unit carriage (*1)	55 37 118
2200 ceiling power supply for unit carriage(*1)	55 37 126
Room cabling	55 36 599

*1 Only one version per SI-PM will be shipped as defined in the order.

Primary Installation Shipment

The materials for the primary installation are always comprised of one sealed shipment per OR .

Primary Installation Materials	**MAT_No.**
Material packet per PI	44 24 201
Comprised of:	
1 Electronics installation kit	55 36 284
1.1 HBT (manual control unit)	55 36 219
1.2 Modem	country-specific
1.3 Keyboard	country-specific
2 Space arm	55 36 250
3 MTS (Monitor Trolley System)	55 36 243
4 DE cabinet (top section)	55 36 607
5 ZE cabinet (bottom section)	55 36 235
6 Unit carriage	55 36 573

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Electronics Cabinet

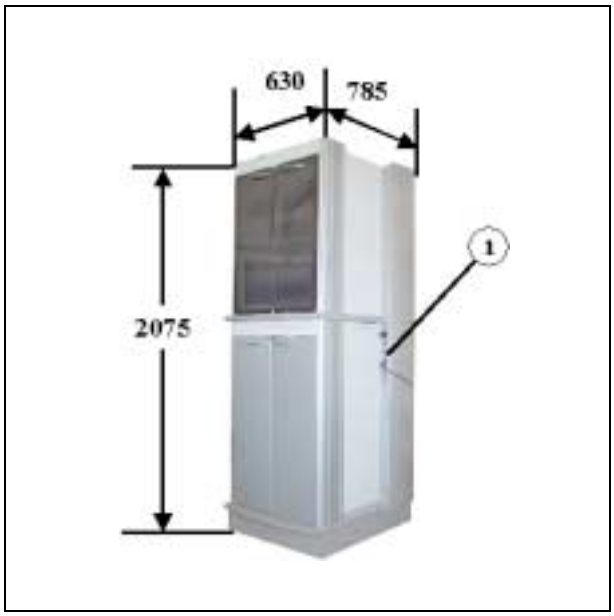

Fig. 1

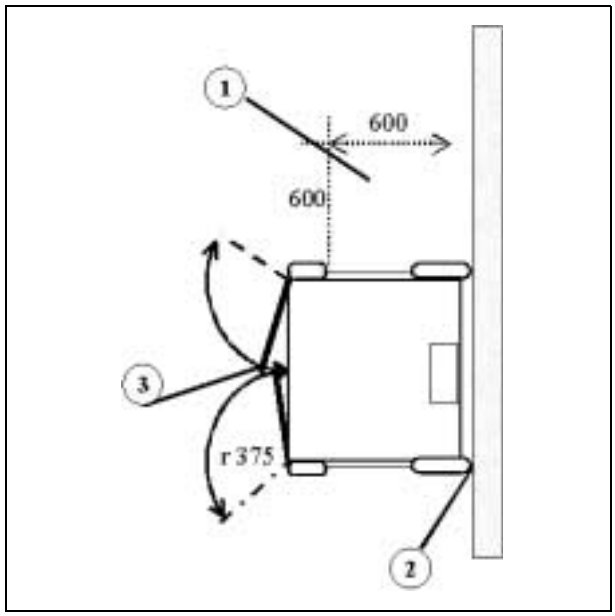

Fig. 2

One side wall must be completely accessible. The SIOS ON, EMERGENCY OFF, video export and radiographic interface switches are comprised of a mechanical unit (1/Fig.1) that is installed on the right or left during installation.

Advance planning for an OR terminal station (1/Fig.2 right or left), minimum equipment corresponds to a TFT monitor plus mouse and keyboard. The hygienic wall sear is made using silicon; a gap of approx. 20 cm should remain at the top for heat dissipation (2/Fig.2). The electronics cabinet can be installed in a corner of the room. However, it should be possible to open the doors wider than 90° (3/Fig.2).

Unit Carriage

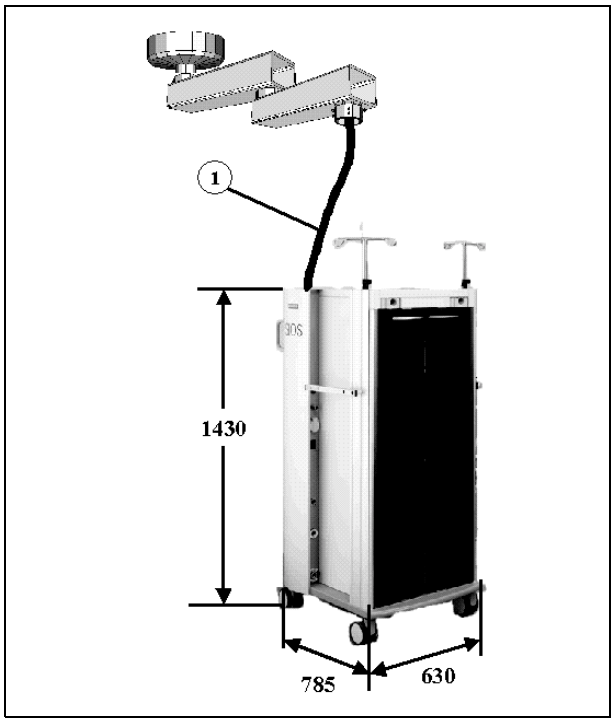

Fig. 3

Fig. 4

Cable openings to unit carriage from ceiling arm 1/Fig.3.

Fig. 4	Component	Comment
1	Design profile (right & left)	Surgery air motor interfaces; CO_2; vacuum; headset; UPS unit; 230V
2	Infuser holder	Mount for infusers for anesthesiology
3	Infusion holder (right & left)	Height adjustable mount for infusion and rinse
4	Cable opening to sterile area (right & left)	Cables from Endo- or Laparascopy; HF ("electrically"); sterile manual control (HBT);
5	Standard rail (right & left)	Mount for suction / rinse devices
6	Infrared transmitter	Table control (installed under the sub floor)
7	Movement grip (right & left)	Unit carriage movement path

Display Unit (DU) Ceiling Mount

Fig. 5

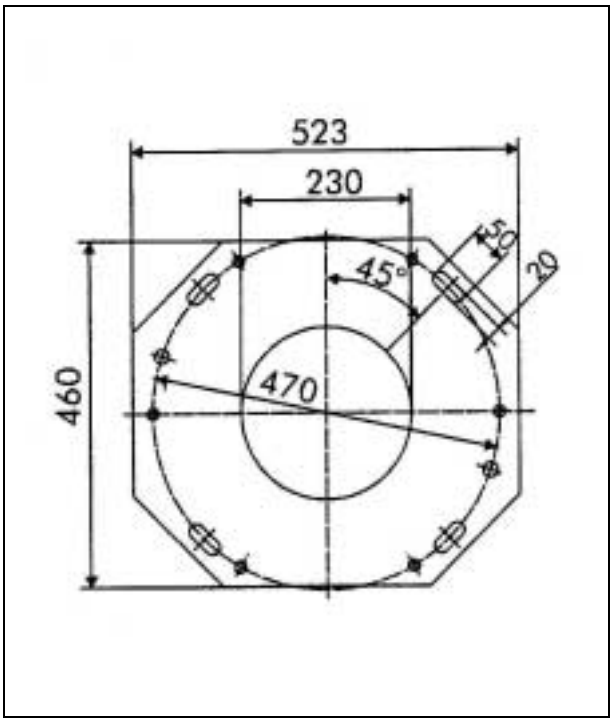

Fig. 6

Fig. 5 Tandem ceiling mount

Fig. 6 Template in anchor plate for support arm for monitor unit

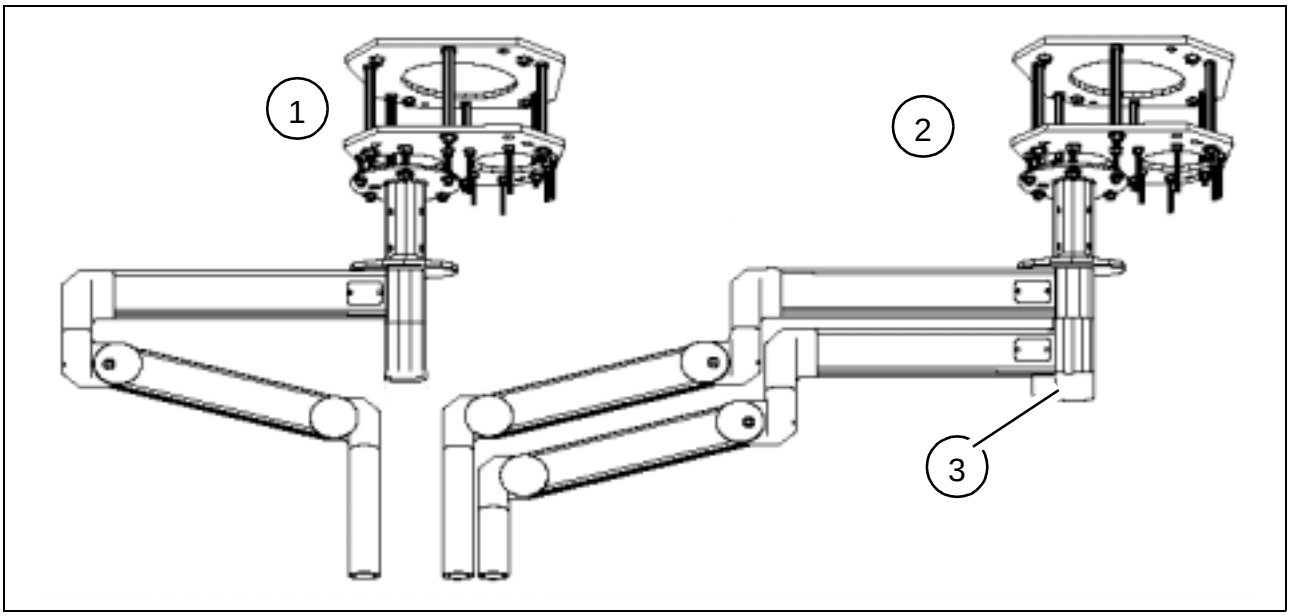

Fig. 7

1/Fig. 7 Standard version of an extender (Ondal space arm) for a max. of three TFT monitors. This construction is always designed for expansion of a second extender for max. of three additional TFT monitors.
2/Fig.7 Second support arm option for max. of three additional TFT monitors. With this version, the flange conduit is 70 mm longer in the down direction (3/Fig.7).

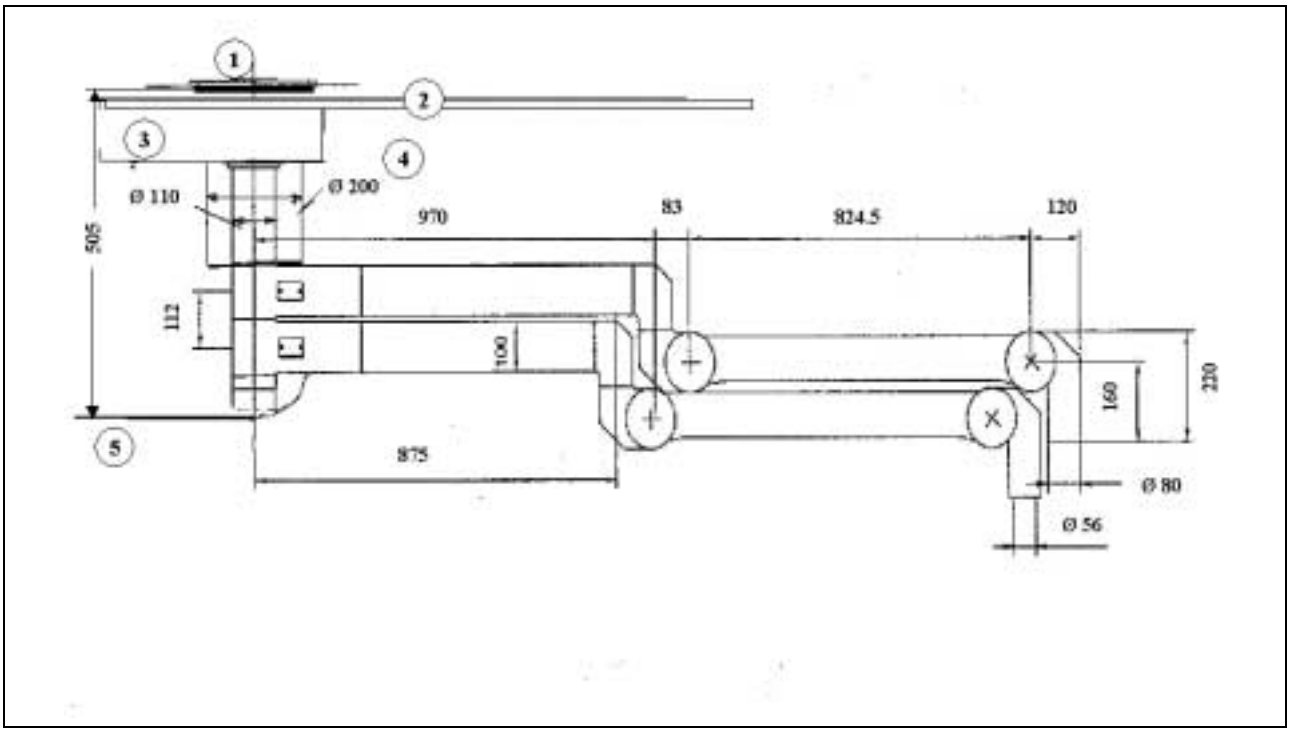

Fig. 8

1/Fig.8 Monitor flange; 2/Fig.8 drop ceiling; 3/Fig.8 flat center fixture for monitor and lamp flange; 4/ Fig.8 round center fixture (cable inlet for support arm 1); 5/Fig.8 cover for support arm 2 cable inlet

Center Fixture for Tandem Mount

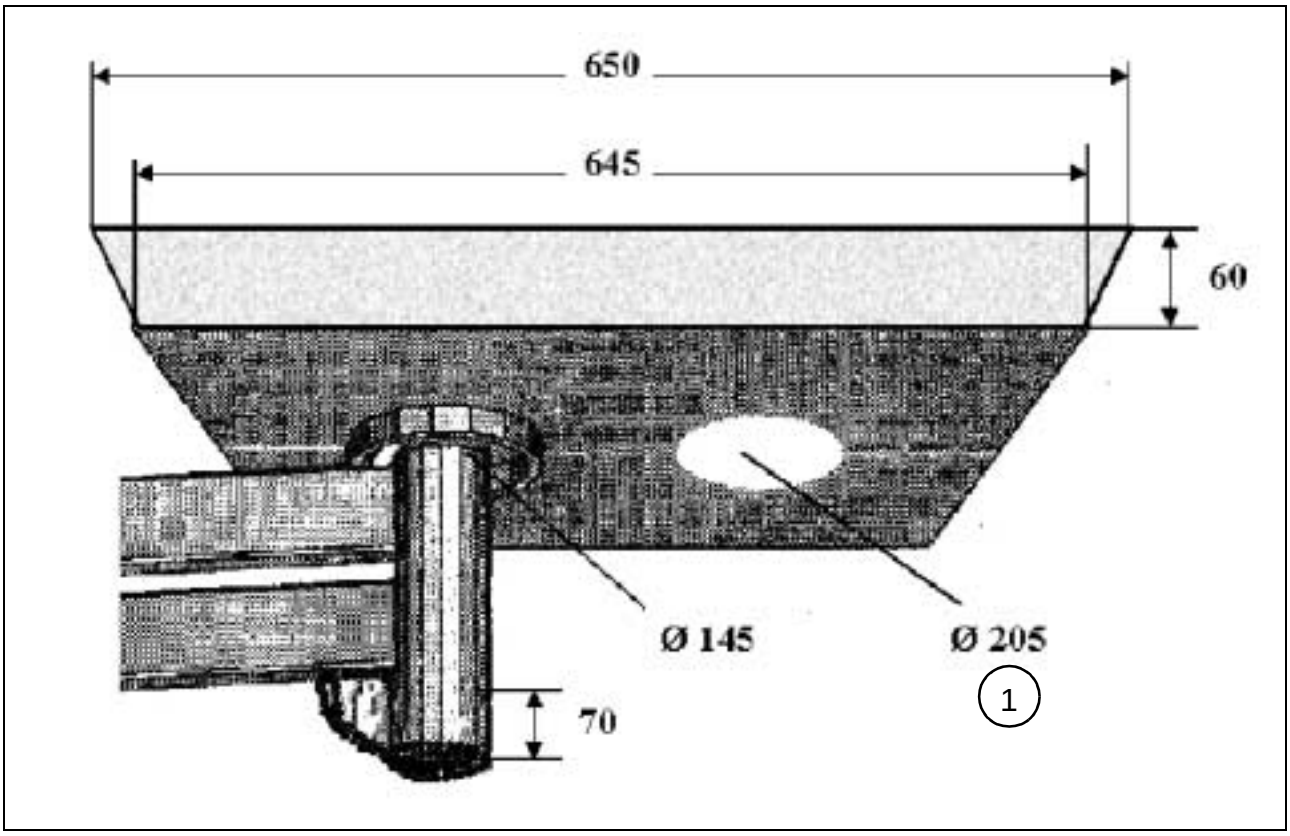

Fig. 9

Maximum opening for surgery lamp flange is 205 mm diameter (1/Fig.9)

Overview of Display Unit

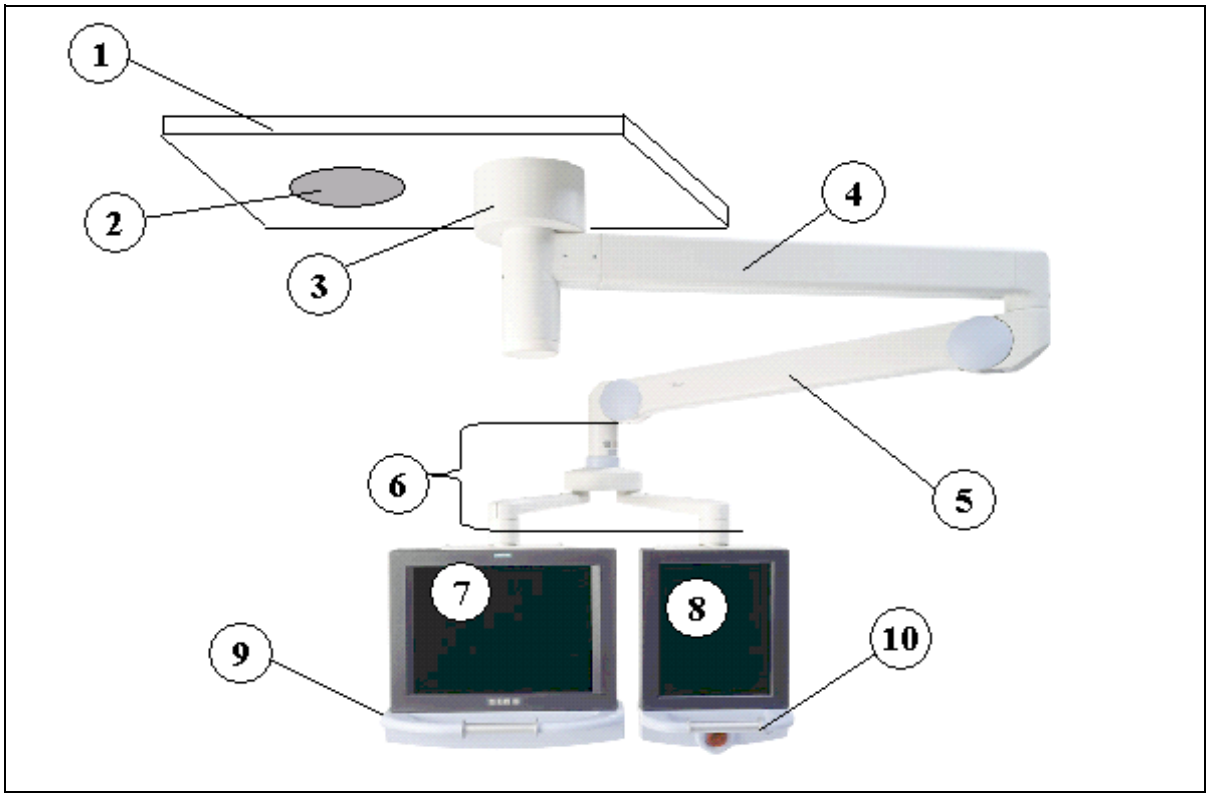

Fig. 10

Fig. 10	Component
1	Flat center fixture
2	Opening for surgery lamp or unit carriage cabling
3	Round center fixture for support arm 1 cables
4	Extender 1
5	Spring-loaded arm 1
6	Monitor trolley system (MTS)
7	TFT 18" Live image monitor
8	TFT 15" menu monitor
9	Grip module for 18"
10	Grip module for 15" with emergency stop

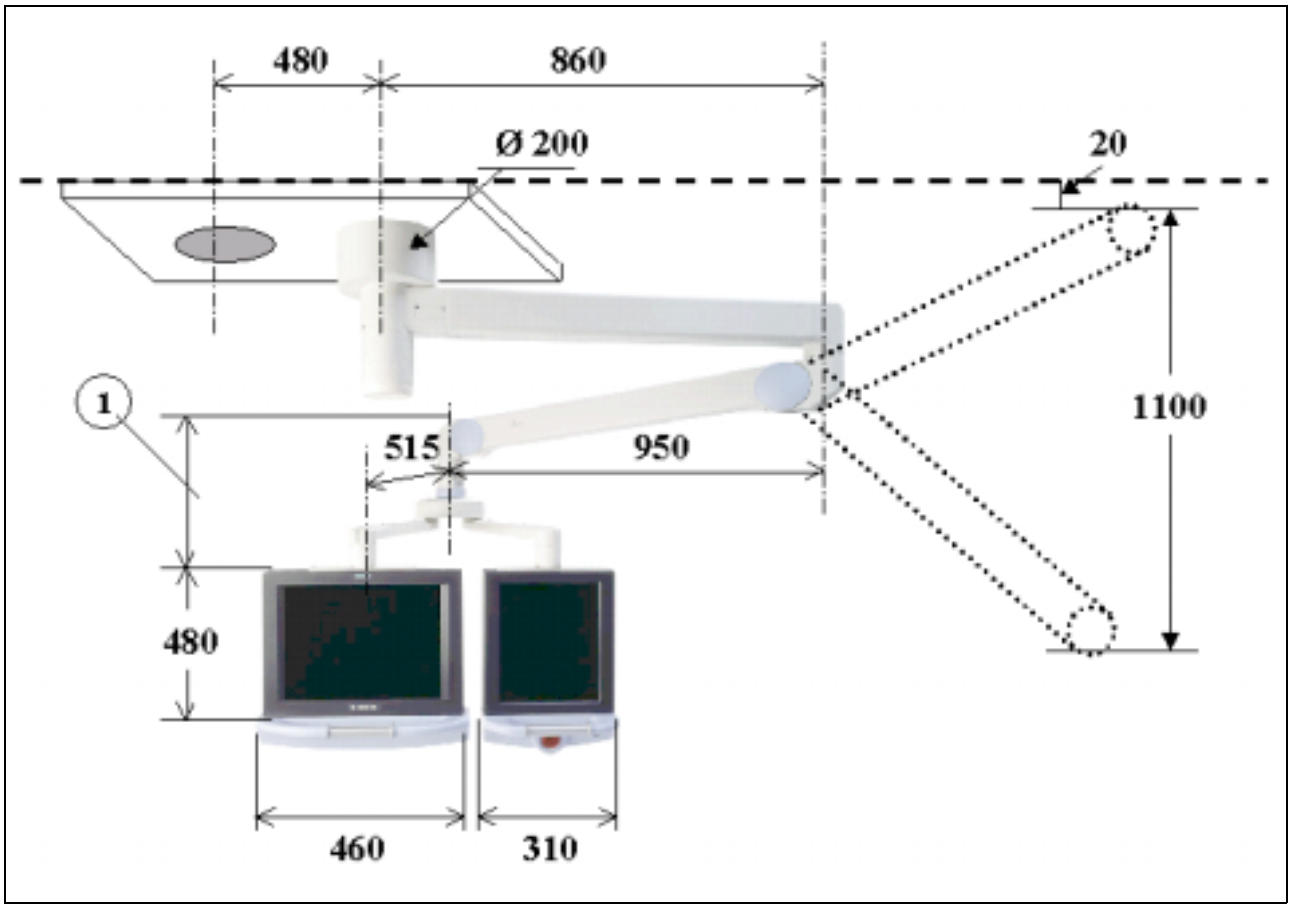

Fig. 11

1/Fig. 11 Equalizing the room height with conduit lengths of 180, 300 or 600 mm.

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